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A Study of Education, Out-migration of Young Adults, and the Impact of Information and Communications Technologies on the Economies of Rural Communities in Newfoundland and Labrador [Avalon West School District]

January 2002

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Prepared for: Canadian Rural Partnership, Government of Canada

This project is the result of a partnership initiative between the Centre for TeleLearning and Rural Education, Faculty of Education, Memorial University of Newfoundland; the Avalon West School District; and the Avalon Alliance. The Avalon Alliance is an alliance created between four Regional Economic Boards: Mariner Resource Opportunities Network (Zone 17) Avalon Gateway Regional Economic Development Corporation (Zone 18) Capital Coast Development Alliance (Zone 19) Irish Loop Regional Economic Development Corporation (Zone 20)

The researchers wish to thank the teachers, administrators, community members, and educational officials who participated in this study.

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This project has been funded by the Canadian Rural Partnership. The Partnership's objective is to investigate how Information and Communications Technologies are being applied in rural and remote schools in Newfoundland and Labrador. Their hope is that lessons learned from this Newfoundland and Labrador study can be used as examples for other rural and remote communities across Canada.

The focus of this report is directed at the Primary, Elementary, and Secondary (K-12) rural schools under the jurisdiction of the Avalon West School District. It is a partnership initiative between the Centre for TeleLearning and Rural Education, Faculty of Education, Memorial University of Newfoundland; the Avalon West School District; and the Avalon Alliance. The Avalon Alliance is an alliance created between four Regional Economic Boards: the Mariner Resource Opportunities Network (Zone 17), the Avalon Gateway Regional Economic Development Corporation (Zone 18), the Capital Coast Development Alliance (Zone 19), and the Irish Loop Regional Economic Development Corporation (Zone 20).

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Four schools offering high school programs (one from each of the four Regional Economic Development Boards within the school district) participated as sites for interviews and research. Their principals, vice-principals, and guidance counsellors contributed through interviews, focus meetings, and answering of follow-up questions. These schools are: Carbonear Collegiate, Carbonear (Economic Zone #17); Fatima Academy, St. Bride's (Economic Zone #18); Roncolli Central High School, Avondale (Economic Zone #19); and Dunne Memorial Academy, St. Mary's (Economic Zone #20).

Rachel Handrigan was project co-ordinator and research assistant. She visited the schools, interviewed principals and teachers, wrote drafts of the report, assisted in editing, and helped in the formulation of conclusions and lessons. Her considerable experience as teacher and assistant director contributed immensely to the findings. Sherman Downey joined the team through Memorial University's Summer Career Placement (SCP) program and added his talents to the project in the role of research assistant and editor.

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INTRODUCTION

This research project is a study of education, out-migration of young adults, and the impact of Information and Communications Technologies (ICT) on the education and economies of rural communities in Newfoundland and Labrador.

Education is often described as a key to economic prosperity, and Newfoundlanders and Labradorians, through various studies and reports, have been advised to train (or re-train) in order to better prepare for participation in the New Economy. Young people, as well as older individuals displaced by the moratorium on the fishing of northern cod, are encouraged to look at non-traditional occupations and to seek new ways to diversify their local economies. It is a major challenge for leaders in rural communities to respond to the needs of youth in the context of a knowledge-based, global economy and at the same time adjust to a radically changing way of life. The rural communities in Newfoundland and Labrador are facing unprecedented numbers of young people and families leaving their communities and often the Province. Those who remain, especially youth ages 15-29, are often unable to find employment. Community leaders involved with regional and local economic development are seeing their skilled labour force migrate from their communities and regions, thereby making community economic development plans more difficult to implement.

The communities in the Avalon West School District reflect this reality. The District is losing approximately 600 students per year - a situation that impacts directly on the ability to offer quality programs in its rural schools. This research project explores the issue of out-migration of young adults. It provides valuable information on education changes due to Information Technology in rural areas as well as its effect on student migration and community development. The information gathered through this study addresses several key priority areas identified by the Canadian Rural Partnership's Rural Dialogue in the Federal Framework for Action for Rural Canada, specifically, Connecting Rural Canadians, Community Capacity Building, Youth, and Access to Education. More information concerning this Rural Dialogue Report and others can be found at http://www.rural.gc.ca/dialogue_e.phtml

This introductory chapter will provide the background to the study, with a discussion of provincial directions in education, the provincial system of education, and the Regional Economic Development Boards (REDBs), as well as the methodology used.

1.1 Background to the Study

1.11 Provincial Issues and Directions

Over the past couple of decades there have been major concerns and issues raised regarding the equality of services provided to rural Newfoundland and Labrador, and the future of these areas. In response to these concerns and issues, there have been a considerable number of reports and recommendations related to the provincial economy and education. Within education, there have been numerous debates and discussions on improvement while at the same time ensuring the equality of educational opportunity and intellectual access to information for all K-12 students. Because of out-migration and the subsequent decline of rural economies, particular attention has been paid to small schools located in rural and remote communities in Newfoundland and Labrador.

Many reports reference the need for improved educational opportunities, greater reliance on distance learning, and providing opportunities that will

maximize students' preparation for a knowledge-based economy. Some of the reports originate within education while others are generated in the search for solutions for community or regional economic and social development. All reports see education as central to the future well being of the Province.

Since the mid-1980's, the following studies, reports, and related documents have been completed:

- Report of the Small Schools Study Project, January 1987
- Towards an Achieving Society, May 1989
- Distance Education: Towards Equality of Educational Opportunities, February 1990
- Our Children, Our Future, Report of the Royal Commission of Inquiry into the Delivery of Programs and Services in Primary, Elementary, Secondary Education. March 1992
- Change & Challenge: A Strategic Economic Plan for Newfoundland and Labrador, June 1992
- The Senior High School Curriculum: A Decade Later (1981-82 to 1991-92), October 1992
- Technology in Learning Environments: Enabling Tomorrow's Learners, Today, October 1994
- The Senior High School Program: New Directions for the 21st Century, December 1996
- A Partnership Model for Distance Education in Newfoundland and Labrador, March 1997
- Science Literacy for the World of Work, May 1997
- The Summative Evaluation of STEM-Net: Educational Networking in Newfoundland and Labrador, March 1998
- People, Partners and Prosperity: A Strategic Social Plan for Newfoundland and Labrador, August 1998
- A Case Study of SchoolNet in Newfoundland and Labrador, March 1999
- Supporting Learning, Report of the Ministerial Panel on Educational Delivery in the Classroom, March 2000
- Interim Report on the Renewed Strategy for Jobs and Growth, March 2000
- Navigating the North Atlantic Rim: A Strategic Plan for the Centre for TeleLearning and Rural Education, April 2000

See Appendix A for a brief description of each report and specific recommendations pertinent to this study.

Drawing on recommendations from these reports, the Provincial Government's Strategic Social Plan (SSP), *People, Partners, and Prosperity: A Strategic Social Plan for Newfoundland and Labrador* (August 1998), calls for "Place Based Development" which integrates economic and social development. It attempts to bring together people, community and region, and the economy. At the provincial level, there is a Social Policy Committee of Cabinet (SPCC) which includes the ministers from the Departments of Education, Health and Community Services, Human Resources and Employment, Justice, Municipal and Provincial Affairs, Environment and Labour, Government Services and Lands, and Tourism, Culture, and Recreation¹. One minister is assigned the lead role. Strategic partnerships with the Federal Government are seen as essential. At the regional level, four Regional Boards are identified as key partners: Health Institutions Boards, Health and Community Services Boards, School Boards, and Economic Development Boards. These four boards are seen as forming a strategic link between government and the community. For example, Goal I of the Social Plan is "Vibrant communities where people are actively involved." Recommended actions require the four Regional Boards to work with the Province's government in order to identify gaps in available resources, including the community leadership capacity and the need of additional resources. Goal II requires the partners to focus on ways to prepare people to participate in long-term development strategies for each region and to "identify the range and extent of employment creation

opportunities" as well as "how long-term employment ... can be created."

¹ With Cabinet changes, names and roles of Departments may change but Ministers responsible for these areas will remain in the SPCC

Education and training is a key component within the Strategic Social Plan. The Provincial Government, in partnership with the Federal Government, is committed to the creation of a well-trained work force. This includes the training of young people, especially those living in rural areas where unemployment is the highest. The actions stated in the Plan identify emphasis on and support for school-to-work and work-to-school transition programs, as well as youth-at-risk programs.

The reports in education focus on education and pedagogy rather than the links between schools and community or regional economic development. There are no recommendations that deal with the Placed Based Development concept from the Strategic Social Plan in the latest Ministerial Panel Report (2000), *Supporting Learning*. Instead, recommendations call for increased use of multi-level classes and TeleLearning. The creation of the Centre of Distance Learning and Innovation, recommended by the Panel Report and established in 2001, is a clear indication of the future being planned for small rural schools. Changes in the use of terminology reflect the changes being planned. Within the Province, the older model used for distance learning is generally referred to as "distance education." The newer model explores newer technologies, including Web-based, multi-media as well as incorporating older technologies if applicable. This is discussed more fully in later chapters. In this report, "TeleLearning" will be used to indicate the latest approach and the use of existing and emerging technologies.

1.2 The Provincial Government

1.21 Legislation - The Schools Act, 1997

The legislative power and financial responsibility for education within Newfoundland and Labrador is held by its Provincial Government. Inclusive with these responsibilities is the power to determine the framework, goals, curriculum development, evaluation of outcomes, and accountability involved with education. The operation regulations for the ten regional school boards and a Province-wide Francophone school board are all clearly stated in the *Schools Act, 1997*.

The education system in the Province of Newfoundland and Labrador is often referred to as a "centralized" system since the Provincial Government, through its Department of Education, has been given considerable power². The *Schools Act, 1997*, Section 52 (1) and (2) gives the Province (the "Lieutenant-Governor in Council" or Cabinet) the power to set the boundaries for school districts and to change the names of these districts. If there are disputes about the boundaries, the Minister of Education has the power to determine them and the act stipulates, "that determination shall be final." Section 53 sets out the process for the elections of school boards. It states that the time and manner of school board elections is "directed by the Minister subject to the approval of the Lieutenant-Governor in Council" and the Minister (in Cabinet) also has the power to set the number of trustees to be elected in each district.

² The degree of centralization of power varies within Canada. For example, school boards in some provinces assume roles and responsibilities assigned by the Department of Education in Newfoundland and Labrador.

The Provincial Government, through its Department of Education, is responsible for the development of the provincial curriculum. The *Act*, Section 75 (1)(a), requires the board to "Organize and administer Primary, Elementary, and Secondary education within the district." Sections 75-77 further require school boards to be accountable to the Minister for

implementing the provincial educational programs, spending the public money for education, and maintaining provincial standards:

75. (3) A board shall be responsible to the minister for the expenditure of public funds, the conduct of programs for instruction, and evaluation required by the minister and for the maintenance of adequate programs and performance standards in schools in the district.

77. (1) A board may establish, maintain, and operate a school where the school provides programs or course of study that satisfy the minimum requirements as approved by the minister.

The *Schools Act, 1997*, makes special provisions for small rural schools. The power rests with the Minister to determine specifics:

77. (2) The minister shall determine and, by order, specify a school that is a small school. And the grades, which may be taught in that school, in which the requirements of subsection (1) cannot be met, but the school must be maintained and operated because of isolation or because the students cannot reasonably be accommodated in another school.

Schools that are designated as small schools are entitled, by the *Schools Act*, to additional resources from the Province's Department of Education:

77. (3) A school specified in an order under subsection (2) shall receive an allocation of resources, as approved by the minister, additional to the allocation of resources provided for schools not specified in the order under subsection (2).

77. (4) The board shall ensure that an additional allocation received under subsection (3) for a school is used in that school.

Such small schools are referred to as "small necessarily existent" schools.

The *Schools Act* gives school boards the power to establish attendance zones for each school within its district (Section 78). However, it is the Minister who, as stated in Section 89, is given the power to "provide for the construction, renovation, extension, and equipment of schools and school board offices out of money voted by the Legislature."

Although elected School Boards are given the authority to carry out specific duties and to make decisions on specific programs, the Provincial Department of Education is ultimately responsible. It is the Provincial Government that carries the authority for any changes that may be necessary for the governance of education within the Province of Newfoundland and Labrador. School Board trustees come from various parts of the school district, but not all communities are represented on the School Board. In Newfoundland and Labrador, there is no formal role for the local municipal government in education. There are no formal links between labour, local or regional economic development, municipal government, and K-12 education, other than partnership agreements developed between school districts and such groups.

1.3 Department of Education - Bureaucratic Structure

The Office of the Minister heads the Provincial Department of Education and its five branches. More information regarding the Department of Education and its structure, policies, and goals can be found on their WebPage <http://www.gov.nf.ca/edu>.

The five branches of the Education Department and their sub-divisions are

as follows:

The Support Services Branch includes five divisions:

- Human Resources
- Financial Services
- Information Technology
- Corporate Planning and Research
- Youth Services

The Advanced Studies Branch includes three divisions:

- Institutional and Industrial Education
- Student Aid
- Federal/Provincial Programs

The Primary/Elementary/Secondary Branch includes four divisions:

- Program Development
- Student Support Services
- Evaluation, Testing, and Certification
- School Services

The Literacy Branch is responsible for literacy development and co-ordinating the implementation of the Strategic Literacy Plan. The Mandate of the Branch also includes early literacy, family literacy, basic literacy/Adult Basic Education (ABE), and workplace literacy.

The Newfoundland and Labrador Council on Higher Education is a joint initiative between the Department of Education, Memorial University of Newfoundland, and the College of the North Atlantic. It was established to respond to priority issues, to facilitate joint planning, and to provide for co-ordination of activities within the public education system. The Mandate for the Council sets as its standard to:

- Provide advice on province-wide policy and planning issues
- Develop a mechanism and process for enhanced co-ordination and articulation among and across sectors of the public education system

The purpose of the Council is to:

- Provide leadership toward expanded and high quality educational opportunities for Post-secondary students through various co-operative arrangements and ventures
- Enhance government/university/college relations
- Ensure complementarity and eliminate unnecessary duplication so that institutions work together as integral parts of a co-ordinated system while recognizing the different Mandates of each
- Replace barriers and uniqueness with systemic linkages to achieve a smooth flow of students and information across traditional educational boundaries

Membership on the Council on Higher Education consists of: Deputy Minister of Education (Chair), Assistant Deputy Ministers of Education, President (or designate) and Vice President Academic of Memorial University, President and Academic representative of the College of the North Atlantic, and one representative of the Directors of Education (K-12). Provision is made for the input and attendance by stakeholder groups.

1.4 Department of Education - Mandate and Vision

Under provincial legislation, The Department of Education is responsible for providing the enabling structure for the education of students at the K-12

level. The Mandate of the Department of Education is built around the following Mission statement:

To provide an affordable, high quality education to Newfoundlanders and Labradorians so that they are able to acquire - through life-long learning - the knowledge, skills, and values necessary for personal growth and the development of society.

The Vision of education for Newfoundland and Labrador, as stated by the Department of Education, includes:

- Learners who are self-reliant and prepared to meet personal and work-related challenges
- Active partnerships among communities, community organizations, and educational institutions
- Educational personnel who are challenged to be creative and innovative in the pursuit of excellence
- Delivery of education that is efficient, effective, and of high quality

1.5 School Districts

Section 52 (1) of the Schools Act, 1997 stipulates that the Province shall be divided into school districts, the boundaries of which are set by order of the Lieutenant Governor in Council (Cabinet). The current configuration for school districts in Newfoundland and Labrador was authorized in 1996 when the Province was divided into 11 districts. Each district served a specific geographical region and was placed under the jurisdiction of an elected school board (For a map showing the geographical region served by each school district, please see <http://www.gov.nf.ca/edu/dir/school/districts>). Each school district has a school district office with a director, three assistant directors, and program specialists. The 11 school districts are as follows:

- District 1 - Labrador
- District 2 - Northern Peninsula/Labrador South
- District 3 - Deer Lake/Corner Brook/St. Barbe
- District 4 - Cormack Trail
- District 5 - Baie Verte/Central/Connaigre
- District 6 - Lewisporte/Gander
- District 7 - Burin Peninsula
- District 8 - Vista
- District 9 - Avalon West
- District 10 - Avalon East
- District 11 - Consiel Scolaire Francophone (Entire Province)

1.6 Regional Economic Development Boards

The Strategic Economic Plan for Newfoundland and Labrador (1992) introduced the concept of Regional Economic Zones. The Newfoundland and Labrador Rural Development Council (NLRDC) and the Newfoundland and Labrador Federation of Municipalities (NLFM) readily adopted this concept, and discussions began immediately on how municipalities, regional development associations, and other development groups could develop more effective partnerships towards economic development.

In 1994, the Government of Newfoundland and Labrador, realizing that the current approaches to economic development were no longer viable, set up a Task Force on Community Economic Development to address the issues concerning economic growth in the Province. Based on recommendations made in Community Matters: The Report of the Task Force on Community Economic Development, on February 10, 1995, the Government of Canada and the Government of Newfoundland and Labrador - more specifically, the Department of Industry, Trade, and Rural Development - announced a new approach to regional economic development. Twenty economic zones were

identified within the Province with each zone having a Regional Economic Development Board (REDB). Each Board has since consisted of an Executive Director and Board members who are volunteers democratically selected by residents of the individual zones. Boundaries for REDBs are determined by the Provincial Government and do not correspond to school board boundaries. For example, the Avalon West School Board deals with four different Development Boards.

The initial responsibility of each Regional Economic Development Board was to develop a five-year strategic economic plan for its zone. The plan would target the resources available to communities and organizations within the zone and would provide the objectives and responsibilities of the REDB and government to implement this plan. The plan would provide the basis for the enhancement of economic growth and employment creation through better co-ordination and integration of programs and services. The Department of Development and Rural Renewal provided training sessions on strategic planning to each REDB. Within each plan there is an educational component, and on each Board there is at least one educational representative (from the K-12 or Post-secondary system).

Regional Economic Development Boards are viewed by both the Federal and Provincial Governments as vital for developing regional economies, and the structure of the Boards is consistent with Government's philosophy of an integrated approach to regional economic development. An integrated approach, as outlined in the Province's Strategic Social Plan, calls for social agencies - health, education, justice, and community/economic development boards to work together. (For a list of all boards see Appendix B).

1.7 Methodology

This is a qualitative study of Newfoundland and Labrador's rural schools conducted from January to August 2001. The Avalon West School District was chosen as a representative school district. Within the District, four schools offering the high school program were chosen for interviews, one from each of the Regional Economic Development Boards. A focus meeting was held in June 2001 with school administrators, guidance counsellors, appropriate school district office staff, and officials from the Avalon Alliance.

The partnership with the District made the research possible. The Partnership Co-ordinator at the district office arranged all local meetings and engaged in the research by working with school administrators and the executive directors from the Regional Economic Development Boards. Through the efforts of the Co-ordinator, interviews were arranged and held in the four project schools, in June 2001. The school principals were interviewed, plus interviews with assistant principals and guidance counsellors. The Partnership

Co-ordinator also arranged for a daylong focus group meeting for school administrators from the four schools and the executive director or representative from each of the four Economic Development Boards (held June 2001).

In addition, the Partnership Co-ordinator made available all school district documents used in this study. Of particular importance were school reports, district newsletters, minutes from meetings, and copies of the district's Strategic Plan. In addition, there was ongoing discussion with and feedback from district office personnel.

The Department of Education also provided information and senior educational officials were consulted. Interviews were held with provincial leaders in programs of interest to this study: Y Enterprise Program, Stem-Net, and Regional Economic Development And Schools (REDAS). Documents, as well as interview information, were received from these individuals. As well, national and provincial reports were consulted and

utilized. Documents (reports, statistics, and promotional brochures) were obtained from the Faculty of Education and the School of Continuing Education. WebPages from relevant organizations and agencies were also searched for pertinent information. Literature research was confined mainly to the areas of greater interest - Information Communications Technology and community economic development and how both related to schools (with an emphasis on rural schools). This study stands as an example of how a Faculty of Education in a large university and a school district can work together to conduct research on topics of interest and concern to both. Each partner played a vital role and the findings are enriched because of it.

1.71 Research Questions

This project examined the following research questions:

1. (a) What governance structures are in place to deliver primary, elementary, and secondary education in Newfoundland and Labrador?

(b) What legislation, regulations, and policies are in place to ensure equality of educational opportunities and intellectual access to information for students located in rural, isolated communities in Newfoundland and Labrador?

2. (a) What is the nature of teaching and learning in the small rural schools of Newfoundland and Labrador?

(b) What is the impact of Information and Communications Technologies on teaching and learning in small rural schools in Newfoundland?

(c) How are Information and Communications Technologies integrated across the teaching and learning environment in small rural schools in Newfoundland and Labrador?

(d) What relationships exist among community economic development strategies on Information and Communications Technologies and the secondary school curriculum (e.g., Careers in the Information Technology sector)?

3. (a) What forms of teacher education (e.g., Pre-service) are in place for the training of teachers who teach in small rural schools in Newfoundland and Labrador?

(b) What are the comparative levels of participation in teacher education programs in Newfoundland and Labrador?

(c) What structures are in place to facilitate ongoing professional development for teachers in small rural schools in Newfoundland and Labrador?

(d) What opportunities are available to provide continuing education (e.g., Information Technology) to adults in rural communities of Newfoundland and Labrador?

4. (a) To what extent have regional/community economic development strategies been integrated across the curriculum in small rural schools (e.g., Enterprise/ Entrepreneurship Education) in Newfoundland and Labrador?

(b) To what extent has youth entrepreneurship been integrated successfully in the education system of Newfoundland and Labrador?

(c) What attempts have been made to prepare learners for locally planned economic development in rural communities (e.g., Local senior high school courses in aquaculture) in small rural schools in Newfoundland and Labrador?

5. (a) What are the demographic trends (e.g., immigration, migration, fertility, etc.) that exist in rural communities of Newfoundland and Labrador?

(b) What are the enrolment trends (e.g., enrolment, entry rates, graduation rates, etc.) that exists in rural Newfoundland?

(c) What is the nature and scope of financial support for education and training in Newfoundland and Labrador?

(d) What is the nature and scope of public support for education and training in Newfoundland and Labrador?

6. (a) What is the nature and scope of youth employment in rural communities of Newfoundland and Labrador?

(b) What is the nature and scope of regional/community economic development in rural communities of Newfoundland and Labrador?

(c) What is the relationship between education/training and regional/community economic development in rural communities of Newfoundland and Labrador?

(d) What evidence exists that Information and Communication Technologies contribute to improved student achievement, transition to post-secondary, and youth employment opportunities in rural communities of Newfoundland and Labrador?

(e) What programs/structures are available to support the transition between secondary and post-secondary education in Newfoundland and Labrador?

7. (a) Who are catalysts for positive change in small rural schools in a local, regional, provincial, and national context in Newfoundland and Labrador?

(b) What is the nature of the activities and structures used to stimulate and support positive change in rural schools (e.g., Community Access Sites, Strategic Economic Plans, etc.,) of Newfoundland and Labrador?

(c) What potential opportunities are available to link education services with community economic development in Newfoundland and Labrador?

1.8 Organization of the Report

This report is organized into six chapters. Chapter One provides the introduction and the background of the study, including the methodology. Chapter Two examines how curriculum is organized in Newfoundland and Labrador. This background information is necessary in order to understand the discussion of specific curriculum areas in Chapters Three and Four. Chapter Three focuses specifically on Information and Communication Technology (ICT) in the schools, paying particular attention to its impact on small rural schools. Chapter Four explores the relationship between community economic development and the school curriculum. Chapter Five focuses on teacher training and continuing education. Chapter Six is a summary and conclusion, with lessons learned.



CHAPTER TWO

THE NATURE OF TEACHING AND LEARNING IN SMALL RURAL SCHOOLS IN NEWFOUNDLAND AND LABRADOR

2.1 General Overview

The decisions regarding curriculum development for the Province of Newfoundland and Labrador schools are made on a local (school district) level, a provincial level and a regional level. The only exception is the Pan-Canadian science initiative¹. The curriculum is designed to support the Mission statement of the Department of Education:

¹ In February 1995 the council of Ministers of Education, Canada (CMEC) adopted the Pan-Canadian Protocol for Collaboration on School Curriculum. Science was chosen as the first area of collaboration. (www.cmec.ca/science/)

To enable and encourage every individual to acquire through life-long learning the knowledge, skills, and values necessary for personal growth and the development of society. (Program of Studies, 1999-2000, p.1)

Prior to the restructuring of education in 1968, the education system of the Province was characterized by rigid prescriptions for curriculum associated with single textbooks, pervasive public examinations, and an overtly inspectorial role. The Department of Education made virtually all decisions about curricular programs and texts for the Province, and little input was invited in such matters. A single text was chosen for each course, and that text became the program for the Province. Since that time, however, the centralized control of the Department of Education has gradually loosened. Today, there are provincial curriculum committees, which include teachers and program specialists, who are influential in the design of curricular documents and in the selection of texts and resources. There has been a movement from the reliance on a single text to the acceptance of alternative materials from which teachers may select. Also, there has been a movement away from the transmission orientation of curriculum (concerned with the mastery of subjects using rote learning) to the transactional orientation of curriculum, which encourages students to think for themselves, to interact collaboratively with teachers and other students, and to access information. In other words, the current focus is that students learn how to learn as well as learn subject-specific content.²

² See the Royal Commission Report, *Our Children, Our Future* (1992), for a full discussion of this curriculum direction.

Currently the Province of Newfoundland and Labrador is using two curriculum structures; a structure that was established by the Department of Education prior to 1996; and another which was established by the Atlantic Provinces Education Federation (APEF) in 1995.

The structure of the curriculum before 1996 was based on objectives. There were subject areas and courses; the courses had goals and general objectives; and the units of the courses had specific objectives/unit objectives. Connections were not always made between the goals/general objectives and the specific/unit objectives. This type of curriculum structure still remains for the part of the curriculum that predates 1996. In 1995, Newfoundland and Labrador became a partner of the Atlantic Provinces Education Federation. Under the Federation, a regional initiative was established to co-operatively develop, implement, and access a common curriculum for the kindergarten to grade 12

(K-12) system in the Atlantic Provinces (Newfoundland and Labrador, Nova Scotia, New Brunswick, and Prince Edward Island). The Atlantic Provinces' Departments of Education agreed that there was a need for clearly articulated statements involving what students are expected to know and be able to do by the time they graduate from high school. They also agreed that the prescribed curriculum should reflect these expectations, and that the provinces should accurately assess the students' achievement of them. Therefore, the provinces, through the Education Federation, have developed a document, *The Atlantic Canada Framework for Essential Graduation Learnings in Schools*, that serves as a foundation to guide and support the development of all school curricula.

The framework contains seven Essential Graduation Learnings. They are:

- Aesthetic Expression
- Citizenship
- Communication
- Personal Development
- Problem Solving
- Technological Competence
- Spiritual and Moral Development

It must be noted that only the Province of Newfoundland and Labrador includes the seventh, Essential Graduation Learning "Spiritual and Moral Development", in the development of curriculum.

The part of the Newfoundland and Labrador curriculum that is outcome-based (meaning all since 1996) includes four levels of outcomes. They are:

- **Essential Graduation Learnings** - statements describing what students should know and be able to do by the time they graduate from high school. They cut across all subject areas. Of particular interest in this study is the sixth Essential Graduation Learning, Technological Competence, which states: "Graduates will be able to use a variety of technologies, demonstrate an understanding of technological applications, and apply appropriate technologies for solving problems".
- **Key-stage Outcomes** - outcomes that articulate what the students are expected to know and be able to do in particular subject areas by the end of a key-stage as a result of their cumulative learning experiences in a particular subject. The key- stages are the ends of grades 3, 6, 9, and 12. They contribute to the achievement of the General Curriculum Outcomes.
- **General Curriculum Outcomes** - outcome statements that articulate what students are expected to know and be able to do in particular subject areas. They contribute to the attainment of the Essential Graduation Learnings and are connected to the Key-Stage Curriculum Outcomes for a particular subject area.
- **Specific Curriculum Outcomes** - outcome statements that articulate what students are expected to know and be able to do in a particular subject at a particular grade level. They contribute to the achievement of the Key-Stage Curriculum Outcomes.

The core curriculum for Newfoundland and Labrador then, is developed by the Atlantic Provinces Education Federation. The remainder of the curriculum is developed at the provincial and local levels. The future development of the provincial and local courses will be based on the Essential Graduation Learnings framework. To ensure quality, The Department of Education must approve all local courses.

Students in the Newfoundland and Labrador school system follow one of five pathways to graduation. The five pathways are as follows:

- **Pathway 1:** Provincially Approved Programs. Includes all those programs prescribed and approved by the Department of Education.
- **Pathway 2:** Provincially Approved Programs with Supports. Uses the provincially prescribed/approved curriculum as the basis for making decisions about adaptations to learning resources and instruction in order to accommodate needs, interests, and abilities.
- **Pathway 3:** Modified Programs. Involves making changes to provincially approved curriculum outcomes in order to meet the needs of a child/youth with exceptionalities. A program is considered

"modified" if outcomes are deleted, added, and/or the depth of treatment has been altered.

- **Pathway 4:** Alternate Programs/Courses. This is a locally developed program/ course designed for an individual child/youth with exceptionalities. It is tailored to match the individual child/youth's strengths. It is considered alternate when the program content has been changed to such an extent that it does not resemble the provincially prescribed course.
- **Pathway 5:** Alternate Curriculum. This does not include specific programs/ courses. It has domains, which are developed to meet the needs of an individual child/youth with exceptionalities. An academic component is only one of eight components that must be addressed when developing an alternate curriculum at the school level.

Assessment and evaluation of student performance is done at the school and regional levels. Individual teachers and schools carry out examinations and other forms of assessment. Assessment is therefore not standardized between different schools and teachers. The way in which the reports are written varies greatly. The assessment can be in the form of a numerical or letter grade or a written commentary. Reports are given at regular intervals throughout the school year.

In 1996, the Provincial Department of Education eliminated formal provincial public examinations at the high school level and replaced them with a system of examinations linked to the broader Atlantic Provinces Education Federation curriculum initiatives.

The Minister of Education (Press Release July 19, 2001) explained why the Ministerial Panel, in its report, *Supporting Learning Educational Delivery in the Classroom* (2000), recommended that public examinations be reinstated:

Research showed that there existed differences in grading practices among teachers and schools that had an influence on final grades, a school-based certificate system was not a consistent measure of students' performance throughout the Province, and that there was a gap between the proficiency of graduating high school students and expectations at the post-secondary level.

Public examinations were re-introduced in June 2001 and were administered in Chemistry 3202, Biology 3201, Thematic Literature 3201, Math 3200, and Advanced Math 3201.

The Division of Evaluation, Research, and Planning, in the Department of Education, has developed Criterion Reference Tests which are administered at the end of the primary program (grade 3), the end of the elementary program (grade 6), and the end of the intermediate program (grade 9). The tests are developed to measure the degree of attainment of the outcomes in the core curriculum.

For students who wish to become fluent in French, the curriculum includes a French Immersion Program. Two options in French Immersion studies are available: Early French Immersion (EFI) and Late French Immersion (LFI). EFI extends from kindergarten to level II, beginning at the kindergarten level with approximately 100 % of instruction in French. With the introduction of English Language Arts at grade 3 and other subjects in English in grade 4 to level II, the percentage of instructional time in French decreases through the years of school. LFI extends from grade 7 to level III with approximately 75% of instruction in French in grades 7 and 8.

English Second language (ESL) programs are also available. They are intended for students from birth countries other than Canada who are unable to benefit fully from regular classroom instruction because of a lack

of comprehension of, or facility with, the English language. The intent of this kind of program is to enable these students to develop the necessary English language skills to function adequately in school and in the community.

2.2 Curriculum Levels/Programs

The provincial curriculum consists of five levels/programs: kindergarten, primary, elementary, intermediate, and senior high. Students are generally expected to cover the same outcomes and subject materials in all five programs. However, the pathways to graduation provide for individual students with special needs.

The nature of teaching and learning in schools in Newfoundland and Labrador is very much controlled by the rules and regulations set forth by the Department of Education.

Budgets and teacher allocations, both of which are based on the number of pupils enrolled, also share control. In addition, school size is a factor, in that small schools offer minimal graduate requirements whereas larger schools offer many more optional courses.

As with any education system, the prescribed curriculum, the government funding, and the teacher allocations do not adequately provide for all the needs of all students. Every school district and/or school has to provide supplementary curricula in areas such as career counselling and Information and Communications Technologies. This is especially true in regards to rural schools. The lack of human and financial resources often deprive students of the knowledge and skills that are needed in the development of each student's educational growth. There is a prescribed provincial curriculum, nevertheless, which all schools are expected to deliver, regardless of size. This curriculum is described more specifically by level in Sections 2.21 - 2.25.

2.21 Kindergarten Program

The kindergarten program is the entry point for public education in Newfoundland and Labrador. It is designed to support the total development (intellectual, physical, social, emotional, spiritual, and moral) of children ages 4 and 5 years old. To enter kindergarten, children must be age five before December 31st of the year they begin.

According to the Program of Studies from the Department of Education, the kindergarten program provides for:

- The diverse needs of the individual kindergarten students
- Integrated and discrete learning in: language arts, mathematics, science, social studies, technology education, art, music, health, physical education, and religious education
- Experiences that lay the foundation for future learning

The expectation expressed by the Department of Education is that the kindergarten learning environment must be a student-centred environment, providing for learning experiences that meet the learning needs and interests of individual students. All schools are expected to provide developmentally appropriate practices that are adjusted to meet the diverse needs of the children and help in the complete development of each child. Schools are expected to carry one continuous and comprehensive assessment to ensure that the appropriate curriculum and instruction is provided.

2.22 Primary Program (grades 1-3)

The primary curriculum is a differentiated one with prescribed content and

core objectives in English language arts, mathematics, social studies, science, art, health, music, French, physical education, and religious education. It is designed to:

- develop fundamental knowledge, skills, and values
- focus on the whole development of the child
- use the activity/inquiry method (hands-on, minds-on approach to learning that helps children meet each learning situation in such a way that it will have meaning for them) as the overall method of instruction
- have students' achievements result from a combination of discrete and connected learning experiences
- see parents and educators as partners in the child's education

The Department of Education's guidelines suggest that the learning environment in the primary school should be one that is sensitive to each child's needs and development area, in which learning is meaningful and student-centred, providing a variety of experiences for self-expression. There is an expectation that there be flexibility in the duration and types of activities. It is suggested that schools foster an awareness of basic emotions that are socially acceptable and behaviours that are socially appropriate or inappropriate. In primary grades, the goal is to recognize each child as a worthwhile individual with potential for growth and development. The Department of Education provides recommended time allotment guidelines for each of the various curriculum areas.

2.23 Elementary Program (grades 4-6)

The elementary curriculum in Newfoundland and Labrador is a differentiated curriculum with a prescribed content that:

- It seeks to provide concepts, values, and skills in: English language arts, mathematics, enterprise education, science, social studies, music, art, religious education, physical education, health, and French
- It expects teachers and parents to have high expectations for the students and provide them extensive encouragement and reinforcement
- It allows students to acquire a strong foundation in basic school subjects

The Department of Education stipulates that the elementary learning environment should be a stimulating and challenging environment for students. There is an expectation that teachers use processes and procedures that make it possible for new purposes to emerge. It is suggested that there be a use of grouping practices, functional management of furniture, independent work activities, and resource-based learning that emphasize the child as a thinking, doing, and feeling learner. The Department of Education sets recommended time allotment guidelines for each curriculum area.

2.24 Intermediate Program (grades 7-9)

The intermediate curriculum, as described by the Department of Education:

- consists of concepts, values, and skills in English language arts, mathematics, science, social studies, music, industrial arts, art, music, physical education, health, family studies, religious education, and French that are relevant to the interests and needs of 12 to 15 year olds
- achieves balance by placing equal emphasis on the cognitive, affective, and psychomotor domains and by taking into consideration the wide range of individual differences in the intermediate school
- helps students consolidate skills for continued learning (e.g.,

- communication and numeracy skills) and develops competence in decision making, leadership, self-reliance, and taking responsibility
- uses problem solving, discussion, group procedures, and strategies that promote independent thinking as the primary approach to education
- uses ongoing evaluation to determine students' remedial and enrichment needs

The Department of Education views the intermediate learning environment as being constructive and interactive, and also healthy and stable. This might be achieved by providing homerooms with a homeroom teacher who will be with the students for a substantive period of the day. In turn, this will also provide the students with a consistent peer group. The environment requires structure and clear limits. It needs to be a low-risk or risk-free learning environment in which discussion and free expression can occur. In addition, the Department of Education has set recommended time allotment guidelines for each curriculum area.

2.25 Senior High Program (levels I, II, III)

In Newfoundland and Labrador, the senior high school program is philosophically anchored in the *Atlantic Canada Framework for Essential Graduation Learnings in Schools*. It comprises the final three years of study in a K-12 educational system. These three years are referred to as levels I, II, and III, and cover what is identified by some as grades 10, 11, and 12. The program is structured on a course-credit basis where credits are accumulated over the three-year period. The achievement of the correct number of courses and credits will lead to the receiving of a senior high school Graduation Diploma. The Department of Education provides a Student Achievement Certificate for any student on an Individual Support Service Plan (ISSP) who is not capable of accumulating the sufficient number of credits.

A credit is determined by the number of hours of instruction. For example: a 1 credit course has a minimum of 55 hours of instruction and a 2 credit course has a minimum of 110 hours of instruction. Credit is awarded by the attainment of 50% on a percentage scale, or "P" on a pass/fail grading system.

For graduation, a student must attain a minimum of 36 credits with at least 20 credits obtained beyond level I and at least 9 credits beyond level II.

Graduation with a French Immersion designation has an added requirement of 6 credits in Français courses and six other courses taught in French.

The minimum core graduation requirements are explained by calculating minimum credit requirements (see Table 1). Schools are encouraged to offer a program that exceeds the minimum and, where possible, provides students with the option of doing 42, 45, or even 48 credits over a three-year period (Source: Newfoundland and Labrador, 1997, *The Senior High School Program: A School Administrators Handbook* (p.II-2).

The senior high school curriculum consists of provincial and local courses. A provincial course is a course that is prescribed by the Province whereas a local course is a course that is developed by a district or school. The Department of Education must approve local courses before they can be offered in a school. Only provincially prescribed courses shall be used to satisfy the minimum core graduation requirements in applicable subject areas or categories with the exception of Enterprise Education, Advanced Placement, and Native Language courses.

Table 1. Senior High School Minimum Credit Requirements.

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Minimum Credit Requirements	
Language Arts	8 credits
	* 6 core (English) * 2 extra credits in English or French
Mathematics, Science, and Technology Education	12 credits
	* 4 Mathematics * 4 Science * 4 Extra credits in Mathematics, and/or Science, and/or Technology * Education
Social Studies	4 Credits
	* 2 Canadian Studies * 2 World Studies
Economic/Enterprise Education	2 credits
Personal Development: Art/Media Education, Music Education, Family Studies, Physical Education, Religious Education, and Career/Co-operative Education	4 credits
Any Subject Area	6 credits
	* (up to 4 credits can be attained through local courses)
Total	36 credits (minimum)

The following is a list of provincial curriculum areas, with total number of courses listed for each (as listed in Program of Studies, 2000-1):

- Art (3)
- Career Education (1)
- Computer Education (4)
- Co-operative Education (1)
- Core French (3)
- Expanded Core French (2)
- Economic/Enterprise Education (5)
- English Language (8)
- English Literature (7)
- Family Studies (5)
- Guidance (1)
- Mathematics (10)
- Music Education (3)
- Physical Education (3)
- Religious Education (3)
- Science (10)
- Social Studies (9)
- Technology/Industrial Training(9)

In each subject area, courses are designed to meet the individual needs of the student depending on the student's interests, abilities, and post-secondary academic studies.

2.26 Distance Education and TeleLearning

Throughout the world, small schools are depending more and more on distance learning to educate their students and more and more distance learning is being brought to the students through the use of technology. With improvements in technology come improvements and reform in the delivery of education at a distance, through TeleLearning.

The Province of Newfoundland and Labrador is no exception to this trend in education. With the decline in student enrolment and teacher allocation, even some of the larger rural high schools are depending on this method of course delivery. This Province has also experienced the growing pains of improving the delivery of courses for students learning at distance. Distance education using telecommunications was launched in the Province of Newfoundland and Labrador in 1987 when it was learned by the Department of Education that small schools were unable to offer the advanced mathematics program. During the 1987-89 school year, Advanced Mathematics 1201 (grade 10) was designed as a pilot project to be taught to small rural schools using the TETRA (Telemedicine and Educational Technology Resource Agency) Network which is operated by the Telemedicine Centre in the Faculty of Medicine of Memorial University of Newfoundland. The TETRA Network is an analog network that uses a combination of audio and computer text, data, and graphics that includes speakers, microphones, and telewriters. Instruction is delivered in a synchronous mode, with distance teachers located in various centres around the Province. Facsimile machines were used for the transmission of completed student assignments and examinations. From the school years 1988-1990, all Advanced Mathematics Program Courses (1201, 2201, and 3201) were offered to greater numbers of small rural schools by distance education using the above mentioned technology.

During the 1990's there was substantial growth in distance learning in rural schools. There were 12 senior high school courses offered including Calculus Readiness, some sciences, and French, all of which were integrated into the regular instructional day.

From 1987-1997, the Program Development Division of the Department of Education administered the distance education program. The administration of distance education was a very centralized model including some collaboration with the principals of small rural schools and school district office personnel. The Program Development Division of the Department of Education designed and developed the student learning resources, facilitated the delivery of the courses through the TETRA Network, developed the schedules, and administered the budget. Prior to 1996, the Department of Education provided additional teacher allocations for distance education. In 1996, distance education allocations were included into the individual board's teacher allocations.

As a result of educational reform and school district consolidation, the administration of the delivery of distance education became a partnership model in 1997. The need for distance education was increasing as a result of the decline in student population in rural communities. The delivery of courses by distance education was critical in order to maintain a minimum program to meet the graduation requirements as set out by the Department of Education and to ensure that students in small rural schools were given an equal opportunity to access post-secondary education. There was a perceived need for school districts to become more involved in the delivery of distance education to their own students, which led to a partnership between The Department of Education, the School Districts, and the Telemedicine Centre, Memorial University of Newfoundland. To facilitate scheduling in two different time zones (Newfoundland Time and Atlantic Time), the Department of Education requested that the Telemedicine Centre regionalize the TETRA Network to parallel the new school district boundaries. As a result, district analog circuits were reconfigured within the TETRA Network. On the island of Newfoundland, the schools' district analog circuits were 4-wire dedicated circuits; however, 2 dial-up circuits were used in Labrador. These networks enabled the Department of Education to implement partnership model.

The partnership model included the centralized instruction design and development of student learning resources with a decentralized delivery of instruction using the school district circuits. The roles and responsibilities of each partner were established and confirmed in a Memorandum of Understanding for each of the school districts.

In 1997, Vista School District, in partnership with the Centre for TeleLearning and Rural Education in the Faculty of Education, Memorial University of Newfoundland, and STEM~Net, began a research and development initiative known as, The Vista School District Digital Intranet: The Delivery of Advanced Placement Courses to Young Adult Learners in Rural Communities. The Program Development Division of the Department of Education also endorsed this initiative. They also began to research and develop four Web-based Advanced Placement courses (Mathematics 4225, Physics 4224, Biology 4221, and Chemistry 4222) for delivery to young adult learners in rural communities using a school district digital Intranet. As a result of financial assistance from SchoolNet/ Industry Canada, the Centre for TeleLearning and Rural Education in collaboration with the Vista School District, STEM~Net, and the School of Continuing Education at Memorial University of Newfoundland, an Instructional Design and Development Team was established.

The Centre for TeleLearning and Rural Education began the process of establishing a Multimedia Research and Development Laboratory to enable the research and development of the four Web-based courses. A multimedia workstation with related peripherals was purchased with financial assistance provided by the Canadian publishing industry; in particular, Addison Wesley Longman, ITP Nelson, and Prentice Hall Ginn Canada. In addition, four multimedia workstations were purchased for developing the Web-based courses with financial assistance from the Canada-Newfoundland COOPERATION Agreement on Human Resource Development, administered by the Atlantic Canada Opportunities Agency and the Department of Education. Each of the schools in the Vista School District were provided with a DirecPC satellite dish as a result of a partnership between the District, STEM~Net/SchoolNet/Industry Canada, and NewTel Communications Incorporated. In addition, financial assistance was also provided to STEM~Net for the purchase of some of the DirecPC satellite dishes under the Canada-Newfoundland COOPERATION Agreement on Human Resource Development.

All schools participating in The Vista School District Digital Intranet: The Delivery of Advanced Placement Courses to Young Adult Learners in Rural Communities project have a school Intranet using WindowsNT that has been linked to a DirecPC satellite dish. These DirecPC satellite dishes provide greater bandwidth (i.e., downlink) for students and teachers to access the Vista School District Digital Intranet, STEM~Net/SchoolNet, the World Wide Web, and the Internet in rural communities.

Vista School District completed an extensive pilot in the 1998-99 school year involving a significant number of students in their graduating year. As a result of this ongoing initiative, young adult learners within the District have improved educational opportunities in mathematics and science. As well, the transition to post-secondary institutions, such as Memorial University of Newfoundland and the College of the North Atlantic, has been enhanced.

The teaching of courses by TeleLearning was extended to schools in the Avalon West School District in September 2000. Students were given the opportunity to register for advanced mathematics, chemistry, physics, and biology. In 2001, in a partnership between the District and the Centre for TeleLearning and Rural Education, funding was received from Industry Canada to revise these courses and to extend course offerings by adding advanced placement literature.

The need to provide opportunities for students to learn at a distance through the use of technology continues to grow in Newfoundland and Labrador.

This is reflected in the following recommendation that was put forth by the Ministerial Panel on Educational Delivery in the Classroom in their *Final Report, Supporting Learning* (2000):

That the Province embark on a program to substantially increase the scope of distance education offerings in the schools through the establishment of a "Centre for Distance Learning and Innovation".
(p.64)

The Department of Education has recognized this need and the Centre for Distance Learning and Innovation (CDLI) is in the early stages of development. The Director was named in the winter of 2000, and plans began immediately for the Centre's creation. The first courses are scheduled to be offered in the Fall semester of 2001.

2.27 Multi-age Classrooms

Currently in Newfoundland and Labrador, many schools, especially the small rural schools, have multi-grade classrooms. These classrooms have as few as two grades or as high as ten grades, with grades varying yearly.

Multi-graded classrooms separate children by grade level and teach a specific program to each grade. The Newfoundland and Labrador education system promotes graded teaching. The Province currently has a graded curriculum with each program level having its own specific learning outcomes and authorized resources to help students attain these outcomes. In addition to this, the standardized tests that are administered at the provincial level assure that teachers cover specific outcomes at specific grade levels.

Many schools find that, in practise, it is impossible for teachers to teach every course to every individual grade in a multi-grade classroom environment. An alternative is to adopt multi-age concepts and teach children as individual students and not as a group. More and more rural schools are adopting the multi-age classroom over the traditional multi-graded classroom. Some urban schools have also adopted the multi-age classroom over the traditional one-grade classroom, regarding it as a more effective pedagogy.

2.3 Partnership Co-ordinator

The Avalon West School District has created the position of Partnership Co-ordinator to help provide its students with an enriched curriculum, to better prepare its students for the world of work, to facilitate ongoing professional developments for its teachers, and to provide continuing education to adults. For the past four years, the District has had a Partnership Co-ordinator on staff. For the first year, this position was funded totally by the Human Resource Development Canada (HRDC) division of the Federal Government. With the withdrawal of Federal funding from K-12 schools, the Avalon West School Board, seeing the importance of such a staff member, decided to fund the position from the Board's budget. This funding continued for the following two years. In the 2000-2001 school year, it was decided to change this position to include the responsibilities of the Co-ordinator for Teacher Development and Growth. As an end result, a new position evolved. The title changed to the Partnership/Teacher Growth and Development Co-ordinator and the position is funded by the Avalon West School Board by using a teaching unit.³

³ For the purpose of this report, the Partnership/Teacher Growth and Development Co-ordinator will be henceforth referred to as the Partnership Co-ordinator.

The role of the Partnership Co-ordinator is to work with representatives of Secondary/ Post-secondary education, Industry, Trade, HRDC, and other organizations to establish school and district partnerships with other

agencies and groups. In addition, the

Co-ordinator is to work with school staff in order to assist in the development of a variety of partnership proposals.

The Avalon West School District, with the aid of the Partnership Co-ordinator, has implemented successful partnerships resulting in:

- Development of curriculum (local courses and unit modules)
- Employment for young people
- Professional development for teachers
- ICT training for teachers, students, parents, and general public
- Classroom and school technical support for ICT
- Research on ICT initiatives
- Scholarships for students
- Computers for schools
- An additional \$1.2 million per year to finance extra educational activities in the District

In our view, the position of Partnership Co-ordinator has been a major asset to the school district. We were told that rural schools are not always able to offer their students the ICT program that should be experienced. Once again, due to lack of human and financial resources, students are very limited as to what they can do with the technology equipment they have. They are very limited as to when and how they use it. Very often students have to raise funds or depend on outside agencies for help. The degree to which this is necessary is illustrated in the number of projects in the Avalon West School District. These partnerships with other agencies and organizations are necessary for the Avalon West School Board in order for the curriculum to be implemented according to their District Plan.

Listed below are a number of partnerships funded by various agencies (Federal Government, Provincial Government, local and national businesses and organizations, and individuals) in the Avalon West School District . (For details on each partnership, see Appendix C).

2000-2001:

- Avalon West Education Foundation
- (CFS) Computers for Schools
- Computer KIOSK Program
- CARING (Creating Amicable Relationships In Newfoundland Groups) Communities/ACTION Teams
- OPEN - Online Professional Development for Educators Network
- GrassRoots
- BRIDGES - Bridging Rural Individual Digital Global Employability Skills (formerly Bridging Regional Industrial Downtime Giving Educational Support)
- Workplace Safety 3220 Course Development
- SSP - SchoolNet Support Parents

1998-2000:

- ACCESS - A Community Computer Educational Support System
- Tuning into Drug and Alcohol Abuse
- Action Research Project (AWSD and MUN)
- TECHS - Technology Enhanced Camp Heightening Science
- REDAS - Regional Economic Development And Schools
- Newfoundland/Quebec Student Exchange
- ICT Technicians - Graduate Employment Program
- On-site WebMaster
- ICT Mentoring Project
- IBM - International Business Marketing Project - Learning Village
- YSC - Youth Services Canada Project - Building Today, Benefiting

- Tomorrow
- Tutoring for Tuition
- Transitions

2.4 Conclusion

There has been considerable curriculum revision since 1996, due mainly to the shift of outcomes and a common curriculum implemented through the Atlantic Provinces Education Federation. There is a close connection between Essential Graduation Learnings, Key-stage Outcomes, and General and Specific Curriculum Outcomes. This has led to a centralized, prescribed curriculum in which the Newfoundland and Labrador Provincial Department of Education assumes major responsibility and control.

By legislation, school districts have the responsibility to organize and administer primary, elementary and secondary education within their boundaries. The wording of the legislation, The Schools Act, 1997, Section 75 (1) (a) and (m), makes it very clear that the duties of school boards, through their district office personnel, is to ensure that those programs or courses of study and the materials prescribed or approved by the minister are followed in all schools under its control. This limits opportunities for school districts (and schools within the districts) to be involved with curriculum development or to develop local courses (which must also be approved by the Provincial Department of Education).

This is also the case in the assessment and evaluation of student performance. The Schools Act, 1997, in Section 117 (b) (vi), lists student evaluation under the powers of the Minister of Education. There is a trend towards greater centralization and increased responsibility by the Provincial Department of Education. For example, provincial public examinations at the high school level, discontinued in 1996, have since been reintroduced, and there is increased emphasis on standardized testing at key stages.

The task of school district offices in delivering the provincial curriculum is challenging. As student enrolments drop, the difficulty in offering a full range of courses to meet the needs of a diverse student population increases. This is particularly true in administering education in small rural areas. The reforms of the late 1990s (especially the elimination of the denominational education system) has led to consolidation of schools and the creation of regional schools that serve all the children of particular regions. However, the declining enrolments in most rural areas still lead to schools with too few teachers to offer the range of courses desired.

TeleLearning is being developed as a means to overcome this challenge, with an increase in the number of courses available to high school students through distance learning. This growth is expected to further increase as the Centre of Distance Learning and Innovation expands. The Province is currently exploring new models for distance delivery.

In small rural schools, multi-age education is also seen as a means of meeting the challenge of declining enrolments. The greatest need found in this study is the need for teachers to be supported if they are expected to move from a graded system (as currently exists) to a multi-age system. One way the Department of Education can provide this support is through a change in the authorized resources they provide schools, from the current reliance on graded resources (prepared for a specific grade level) to non-graded, multi-age resources (prepared for individualized instruction).

It was discovered that educators are very aware of these challenges. The Avalon West School District has been involved, as have all provincial districts, in determining how best to accommodate students so that they can provide the most comprehensive programming available. School closures are never easy to do, and the Avalon West School District's experiences illustrate the emotional effects that a closure of a community school has on its residents. Even when schools are consolidated, we found that it is not

easy for districts to implement the prescribed curriculum, as they are expected by law. The lack of resources (financial, human, and print) is acute. To operate on only the resources provided by the Department of Education is to limit the curriculum in a way that most districts cannot accept. The alternative is to find external funding from other agencies and groups. This study confirms how necessary partnerships with other agencies have become. The success of Avalon West School District depends, to a large extent we found, on the success that the district office has in attracting external funding to their schools. In no small measure, this success reflects the importance of the position of a Partnership Co-ordinator.

We were surprised at the amount of funding and support available from outside agencies, particularly the Federal Government, through Federal-Provincial Agreements. However, most school districts do not have such a position at the district level, and there is no provision for it in provincial allocations. School districts that create the position of Partnership Co-ordinator do so by using a teaching unit or funding it in some other way. It raises the question: What happens in school districts that do not have such a Co-ordinator? Do they miss out on this funding? If funding is obtained, who acquires the information? Who makes all the necessary contacts? Who writes the proposals and co-ordinates all the work in other provincial districts as it is done through the Partnership Co-ordinator in the Avalon West School District? The evidence from this study illustrates that the position of Partnership Co-ordinator brings much needed external funding and support into the school district (and therefore the schools), thereby enriching what is happening in schools and classrooms. It is desirable, we found, to have such a position in all school districts.



CHAPTER THREE

INFORMATION AND COMMUNICATION TECHNOLOGIES (ICT) AND SCHOOLS

In August 1999, Memorial University of Newfoundland celebrated its 50th Anniversary. One of the events included in this celebration was the hosting of an International Symposium on the Sustainability of Small Rural Schools across the North Atlantic Rim. One of the presentations at the Symposium was made by a group of educators from the Avalon West School District. The groups consisted of the Assistant Director of Programs for the District and four teachers from a rural school within the District, Fatima Academy. This presentation, Just 'Cause You're in the Woods Don't Mean Ya Can't "Boot 'er Up", showed the process followed by Fatima Academy, with support from district office, to become a leading school in implementing Technology Education in the District. Industry Canada selected the school as one of four innovative schools in the Province, one of twenty-five in Canada, and the national first place winner in the "communities @ ca" contest.

The recognition Fatima Academy has received illustrates that despite smallness and the limitations imposed by geographic location, small schools such as Fatima Academy can be very active in the use of Information and Communication Technologies. Part of the secret is to follow Fatima's example. In their presentation they focused on how to make the maximum use of what the school has rather than concentrate on what it has not. The observations we made in this study confirm that there are very exciting things happening in small rural schools.

We found that the schools chosen for this report are very involved with the use of Information and Communication Technologies across the curriculum. There are areas in the curriculum where ICT is emphasized more than others (such as in technology education). However, there are no areas of the curriculum unaffected, since "Technological Competence" is one of the

seven Essential Graduation Learnings that cut across all subject areas. We found that it is not an easy or straightforward task to separate and examine Information and Communication Technologies (ICT) in schools for a number of reasons. First, it is found in various areas of the curriculum; second, in each subject area the focus is slightly different; and third, many programs are proposed but not developed.

This Chapter begins with a brief description of the prescribed science curriculum, a major curriculum area that deals with technology, including ICT. Next, there is a detailed examination of the technology education curriculum. Since technology education deals directly with ICT, this emphasis is appropriate. Then, as a means of adding richness to the discussion, the use of ICT in the four schools that participated in this study is discussed. This section relies on the interview data from principals and teachers and provides an opportunity to discuss other areas of the curriculum. It becomes clear that what is happening with ICT in schools (using the Avalon West School District as an example) is greatly enhanced by partnerships, and these partnerships are examined. The Chapter concludes with a discussion of the most urgent problem facing educators in the use of ICT in schools: that of bandwidth.

3.1 Prescribed Science Curriculum

It would be incomplete to discuss use of technology in schools without mentioning the expectations in the science curriculum. The science curriculum in Newfoundland and Labrador is part of the Atlantic Province's Education Federation's core curriculum developed for Atlantic Canada, and is based on the Pan-Canadian framework document, Common Framework of Science Learning Outcomes K-12. Like similar reports from other areas of the curriculum, its Vision begins with the seven Essential Graduation Learnings. In the Federation's document, Foundation for the Atlantic Canada Science Curriculum, there are four General Curriculum Outcomes:

- **General Curriculum Outcome 1:** Science, Technology, Society, and the Environment (STSE) - Students will develop an understanding of the nature of science and technology, of the relationships between science and technology, and of the social and environmental contexts of science and technology.
- **General Curriculum Outcome 2:** Skills - Students will develop the skills required for scientific and technological inquiry, for solving problems, for communicating scientific ideas and results, for working collaboratively, and for making informed decisions.
- **General Curriculum Outcome 3:** Knowledge - Students will construct knowledge and understandings of concepts in life science and physical science, and apply these understandings to interpret, integrate, and extend their knowledge.
- **General Curriculum Outcome 4:** Attitudes - Students will be encouraged to develop attitudes that support the responsible acquisition and application of scientific and technological knowledge to the mutual benefit of self, society, and the environment. (p.12)

In General Curriculum Outcome 1, students explore the relationship between science and technology. Selected Key-stage Curriculum Outcomes for the end of grades 3, 6, 9, and 12 illustrate the way students are to develop in their understanding of this relationship:

By the end of grade 3, students will be expected to:

- Demonstrate and describe ways of using materials and tools to help answer science questions and to solve practical problems
- Describe how science and technology affect their lives and those of people and other living things in their community

- Undertake personal actions to care for the immediate environment and contribute to responsible group decisions

By the end of grade 6, students will be expected to:

- Demonstrate that science and technology use scientific processes to investigate the natural and constructed world or to seek solutions to practical problems
- Describe positive and negative effects that result from applications of science and technology in their own lives, the lives of others, and the environment

By the end of grade 9, students will be expected to:

- Explain how science and technology interact with and advance one another
- Analyse social issues related to the applications and limitations of science and technology, and explain decisions in terms of advantages and disadvantages for sustainability, considering a few perspectives

By the end of grade 12, students will be expected to:

- Describe and explain disciplinary and interdisciplinary processes used to enable us to understand natural phenomena and develop technological solutions
- Distinguish between science and technology in terms of their respective goals, products, and values and describe the development of scientific theories and technologies over time
- Evaluate social issues related to the applications and limitations of science and technology, and explain decisions in terms of advantages and disadvantages for sustainability, considering a variety of perspectives (A selection of 10 of the 19 Key-stage Curriculum Outcomes, pp.20-21)

General Curriculum Outcome 2 of the Foundation for the Atlantic Canada Science Curriculum report moves from a broad understanding of science and technology in society to skills required for scientific and technological inquiry. The study recognizes that the skills will not be unique to science, but that there will be overlap with other subject areas. This is obviously the case in the communication and teamwork skills components, where students are required to use current and appropriate technologies and tools. The recommended approach is resource-based learning where students use a variety of resources (p.36). The document stipulates, "technology should have a major role in the teaching and learning of science" (p.44), and lists all forms of Information Communication Technologies (computers and all related technology). A special section in the document (p.45) provides guidelines for the effective use of tutorial software, simulation software, analog-digital interface, databases and spreadsheets, networking, and the Internet. To follow the curriculum framework and guidelines for science, then, all schools, regardless of size, should be using all modern forms of ICT in the classroom.

3.2 Prescribed Technology Education Curriculum

There is an overlap of outcomes between the science curriculum and the technology education curriculum. A Curriculum Framework for Technology Education: Living in a Technological Society outlines the technology curriculum K-12 and identifies the nature and purpose of technology:

- Helps students develop understanding, skills, and attitudes needed to become knowledgeable consumers and users of technology
- Engages students in active learning that will allow them to construct knowledge from a wide range of sources and activities

- Provides students with opportunities to develop technical solutions to problems and ways to determine if their predictions are accurate
- Expects students to distinguish between the processes and strategies of technological activity and the consequence or product of technological activity
- Expects students to interpret and assess the pervasive role of technology in society
- Expects students to choose appropriate technology resources and to use tools effectively
- Expects students to evaluate technical activities, products, and solutions and effectively communicate their findings
- Employs multiple strategies, processes and skills
- Develops comprehensive, meaningful connections to, and among, other disciplines
- Develops analytical and critical skills
- Enhances communication skills
- Fosters self-esteem
- Develops work habits and career understandings
- Develops an understanding of the practical uses of knowledge and skills by applying them to solutions
- Contributes to the realization of the student's creative potential
- Develops self-confidence, adaptability, and attitudes necessary for life-long learning

As is the case in science, the technology education curriculum is grounded in the Essential Graduation Learnings as set out by the Atlantic Provinces Education Foundation:

- Aesthetic Expression
- Citizenship
- Communication
- Personal Development
- Problem Solving
- Technological Competence
- Spiritual and Moral Development

Working with these seven Essential Graduation Learnings, the technology curriculum is based on six General Curriculum Outcomes:

- **Nature of Technology.** Students will demonstrate an understanding of the nature of modern technology, including the basic technological and scientific principles that underlie technology activities, processes, resource utilization, technological tools, and systems.
- **Technological Problem Solving.** Students will solve technological problems by employing the design process to identify needs and opportunities, generate solution ideas, make and fabricate solutions, and evaluate and reflect on them.
- **Technical Impact.** Students will demonstrate understanding of the impact of technology and technological change on self, society, the workplace, careers, and the environment.
- **Technical Literacy.** Students will read, comprehend, write, and use the language and terminology of technological problem solving and will make appropriate use of technological products.
- **Life-long Learning.** Students will demonstrate understanding of the role of technology to enhance the learning process, will use technology as a learning tool, and will develop active learning strategies to employ technology for life-long learning.
- **Technical Communication.** Students will demonstrate understanding of the role of Information and Communications Technologies in managing technological processes and resources, and will use them to manage and communicate effectively about

These six General Curriculum Outcomes are reflected in every module, course, and grade level of the program. There is a growth in the complexity of skills with each grade level. The six General Outcomes contribute to the Essential Graduation Learnings. For example:

- Nature of Learning contributes primarily to Technological Competence.
- Technological Problem Solving contributes primarily to Problem Solving and contributes significantly to Technological Competence and Aesthetic Expression.
- Technological Impact contributes primarily to Technological Competence and contributes significantly to Spiritual and Moral Domain.
- Technological Literacy contributes primarily to Citizenship, and contributes significantly to Technological Competence and Communications (ICT).
- Life-long Learning contributes primarily to Personal Development.
- Technological Communications contributes primarily to Communication.

The technology curriculum also falls into five domains of technological learning. These domains are discrete organizers, but in practice, most activities that students engage in will involve more than one domain. The domains are applied at all levels of the curriculum with various concepts, tools, strategies, and activities introduced that are appropriate for each level. The domains are as follows:

- Communication - the technological processing of information
- Control - managing of the machines and systems
- Production - use of tools and materials to create objects and products
- Energy and Power - application of devices and processes to convert, transmit, and conserve various forms of energy
- Biotechnology - practice of using biological processes to create products

Although the process of problem solving drives this program, it is clear that application of Information Communication Technologies (ICT) is important in meeting the Curriculum Outcomes. Not all programs based on these domains are developed for any of the levels. This applies especially to the primary, elementary, and intermediate levels. A Department of Education official confirmed that no plans are in place to develop the primary programs until 2006 at the earliest. This report will present the proposed program for these levels and the current program for the senior high level.

3.21 Proposed Primary Program

The primary program consists of modules that are allocated specific time limits.

- Kindergarten - 3 modules (3 hours)
- Grade 1 - 3 modules (5 hours)
- Grade 2 - 3 modules (5 hours)
- Grade 3 - 3 modules (5 hours)

These modules are designed to allow students to experience technological domains, all six General Outcomes, and to make connections to other disciplines and domains of learning.

3.22 Proposed Elementary Program

The elementary program consists of modules with specified time allocations.

- Grade 4 - 3 modules (8-10 hours)
- Grade 5 - 3 modules (8-10 hours)
- Grade 6 - 3 modules (8-10 hours)

Each module is designed to integrate content and knowledge from three or more domains with all domains being covered within the three modules. Each module will incorporate all the technology General Curriculum Outcomes and is designed to stand-alone or be integrated into other areas of the curriculum.

3.23 Proposed Intermediate Program

The intermediate program consists of modules that are domain specific.

- Grade 7 - 1 module (Communication)
- Grade 8 - 2 modules (Control, Production)
- Grade 9 - 2 modules (Energy and Power, Biotechnology)

These modules are designed to connect to other activities across other disciplines. They make connections across the domains while still focussing on a specific domain. The grade 7 module may be implemented as a stand-alone or integrated. The grades 8 and 9 modules are stand-alone modules with some internal flexibility.

3.24 Current Senior High Curriculum

At the senior high level, technology is both a subject to be taught and a medium of instruction. The goal is to enable students to attain greater levels of competency concerning technologies and learn how to benefit from use of them. The current senior high technology curriculum, as presented in The Program of Studies, 2000-2001, consists of specific courses that fall under two areas of study: computer education and technology and industrial training. The integration of technology is encouraged in all areas of the curriculum.

3.241 Computer Education

The Program of Studies, 2000-2001 lists four courses under computer education:

Microcomputer Systems 1100 - An introductory course that requires MS-DOS microcomputers. This course focuses on microcomputer systems, MS-DOS and disk management, and the computer as a tool.

Computer Applications 2100 (Prerequisite: Microcomputer Systems 1100) - This course focuses on three major computer applications: spreadsheets, databases, and presentation graphics. The projects completed by students should be linked to a number of subject areas in the curriculum.

Keyboarding/Word Processing 1101 - An introductory course which focuses on keyboarding using a microcomputer keyboard and an introduction to word processing.

Advanced Word processing/Desktop Publishing 2101 - (Prerequisite: Keyboarding/Word processing 1101). This course focuses on activities related to various subject areas in the curriculum as well as demonstrating the use of the application in the world of work. Activities include: simple business letter, announcement/advertisement, title page for resume, form letter, labels/envelopes, research paper, mathematics assignment, science laboratory report, newsletter, and brochure.

Technology education is based on the General Outcomes that are concerned with the nature of technology, technological problem solving, technological impact, technological literacy, life-long learning, and technological communications. Content for the program is based on the technological areas of communications, control, production, energy and power, and biotechnology. Courses that come under this program are:

Design Technology 1109 - Deals with the basic design program common to the various technologies and to other technology education courses being developed. The purpose of the course is to provide an introduction to the technical design process and to technology education. Students learn about the modern design process and the creative design process through application of information, knowledge, and method in a practical setting. Outcomes include personal development, career orientation, and the importance of technology to society.

Design Technology 2109 (Prerequisite: Design Technology 1109) - Provides for application of design knowledge acquired by the student in Design Technology 1109 to the technical design process as used in small residential design construction methods. They develop the ability to solve residential construction and design problems, to illustrate and communicate design solutions to others, and to create detailed building plans and diagrams. Concepts of modern technology with its associated benefits and disadvantages are cultivated contributing to personal growth, career exploration, and life-long learning. This is a practical course.

Communications Technology 2104 - An introductory course in communications technology. The units are as follows: Introduction to Communications Systems, Electronics of Communications Systems, Communications Networks, Audio Systems Technology, Basic Graphic Communication, Animation Technology, and Marine Communications Technology.

Communications Technology 3104 (Prerequisite: Communications Technology 2104) - A more advanced course in communications technology. Students design and implement solutions to communications in technical graphics production, analog and digital video, multimedia, and automated (computer mediated) production stimulation systems. Transportation based problems are explored as industrial applications of communications systems.

Computer Technology 3200 (Prerequisite: Microcomputer System 1100 or equivalent) - This course is intended for students who will pursue careers in science and technology upon graduation. There are four core units: Architecture, Programming, Interfacing, and Careers. Students must also elect to study two of the following Application Explorations:

- Interfacing Applications
- Data Retrieval and Manipulation
- Operating System Applications
- Advanced Programming Applications

"We would not be able to offer some of the courses in the prescribed curriculum if we didn't have distance education."

"TeleLearning is very helpful - our students can now do advanced placement courses."

"Students and teachers use it as a source of information. A way of putting 'the world in your backyard'."

As revealed in these statements by principals interviewed in the Avalon West School District, ICT is used in various ways in the schools. Some of the uses identified are:

- **A Means to Offer the Prescribed Curriculum.** All schools offer technology courses, modules, and or activities that will lead to the development of Technological Competence (the sixth Essential Graduation Learning). This may be linked to General or Specific Curriculum Outcomes in specific courses (i.e., technology education) or it may be multi-disciplinary.
- **A Method of Delivery for Courses.** TeleLearning plays a very significant role in the delivery of courses in the rural schools. Classroom teachers also use technology to do presentations for students. Some teachers have put their courses online so students can have access to them at home; other teachers use technology to help them teach courses for which they do not have the specific qualifications to teach (e.g. Online Music, Online Home Economics). The plan is that the complete high school program will be available through the Centre for Distance Learning and Innovation.
- **A Means of Enriching the Curriculum.** Teachers use ICT to provide activities for their students to enrich the curriculum. This comes in the form of games, competitions, and accessing the Internet to communicate with other students in other schools in the District, Province, or throughout the world. Teachers often use it to do collective initiatives (e.g. twinning courses). Students and teachers are very involved in GrassRoots projects.
- **A Resource/Tool.** Teachers and students use it to access information, do lesson plans, and complete assignments.
- **A Means of Professional Development.** Teachers participate in a number of programs that are implemented by the school district or other organizations/ agencies that help them develop professionally. Teachers and students often teach each other computer skills during and after school hours. The creation of a Virtual Teachers Centre (see Section 5.248) promises increased opportunities for this use.
- **A Means of Communication.** ICT can be used as a means of communication between students, parents, and teachers. Some students and teachers have their own WebPages that parents can access.
- **A Means of Offering Continuing Education for Adults.** Many schools offer continuing education to members of the community and remain open after school hours so adults may use the school's computer facilities. Projects such as the KIOSK Project in the Avalon West School District are an example of such use. These schools are often eager to offer other services to the community as well. For example, on the day of the interview with the vice-principal of Fatima Academy, the ICT teacher and a number of students were travelling to School District #2, located approximately 1000 kilometres away, to meet with the ICT teacher in one of the schools in that district. The purpose of the meeting was to learn how to set up a local television channel. The District #2 school has been successfully operating a local television channel for a number of years. The number of activities and the number of participants involved in them illustrate that the public's support for education and training is strong.

We found that schools in the Avalon West School District are implementing the prescribed curriculum in all levels, and ICT is integrated across the curriculum. At all levels, students are taught how to operate hardware and

software, and how to use the computer as a resource. Technology teachers and regular classroom teachers are responsible for providing intellectual access to information in the schools. In some schools, this was done directly and in others, only indirectly. The direct approach means that dedicated time is set aside to teach children how to access information properly, and the indirect approach means that it is done while students are doing research projects or other activities. In all cases, technology is integrated into the curriculum.

To have achieved the measure of success that ICT has is the result of a major effort. Within the District there has been considerable effort to obtain technical support at both the District and school level through external funding and partnerships with external groups. The many partnerships that have been formed (see Appendix C) have contributed in a major way to placing support people in the district office and in schools.

Few schools in the Province have access to as much technical support as the schools in the Avalon West School District. Using the District office as a base, technical support people visit schools on a scheduled or on-call basis. The geography of the District allows a technician to reach any school in the district within an hour. The number of technicians available will vary, from 3 to 30, depending on the contracts and partnerships in place. Yet, the needs for technical support are such that all technicians are kept busy and more would be useful.

The continued use of technical support people in the Avalon West School District is a strong indicator of the need throughout the Province. It is difficult to understand how schools lacking such support can succeed. Earlier research by Brown (2000) reveals that schools are sorely lacking in technical support. There are schools in the Province with no technical assistance available at all, other than the skills of the teachers. There are no provisions in teacher/staffing allocations from the Provincial Government for such support. The evidence from this study shows that even with technical assistance, it is a difficult task to implement computers across the curriculum. Without providing teachers with technical support both in the school and in the classroom, the chances of successfully implementing ICT and technology education is greatly reduced.

3.4 Information and Technology Partnership Program

Much of the action that is happening in the area of ICT in the Avalon West School District is the result of partnership affiliations⁴. These partners have come from the local, regional, provincial, and national levels. Some of the partnerships have been initiated at the school level, but most have come through the efforts of the Partnership Co-ordinator at the District level. Some of the programs are found in schools Province-wide, whereas others are specific to Avalon West only. A description of some of the partnership programs follows.

⁴ To find out more about partnerships, check the District's Website at www.awsb.k12.nf.ca

3.41 STEM~Net

STEM~Net is the provincial educational network for schools. Its Mission statement is:

To provide high-quality learning opportunities, network access, and online resources for students and educators in the K-12 education system in Newfoundland and Labrador by taking a leadership role in educational networking and by developing effective and productive relationships with local, national, and international partners and stakeholders.

The Goals and Objectives of STEM~Net, as stated on their Website

- serve all students and educators in the K-12 education system in Newfoundland and Labrador
- enhance its strong student focus through the continued development of quality projects and activities
- foster effective and productive relationships with its local, national, and international partners and stakeholders
- continue its leadership role in the provision of quality student, teacher, and school Internet access in all parts of Newfoundland and Labrador
- encourage all stakeholders to contribute to the development and sharing of high-quality online educational resources and content
- provide teacher support, professional development, and training in educational networking and technology integration
- facilitate educators' access to professional development opportunities
- facilitate continuing education opportunities for teachers
- enhance the distance education opportunities for K-12 students
- provide research and development in educational networking
- assist schools, districts, and the Department of Education in pilot projects and innovative practices in education
- provide a means of sharing best practices in education
- continue its role as the SchoolNet partner for Newfoundland and Labrador
- promote the involvement of Newfoundland and Labrador schools in national and international activities
- promote educational networking as a communication tool for the K-12 educational community in Newfoundland and Labrador
- facilitate the distribution of educational resources, including online curriculum materials
- continue an advocacy role in maintaining and advancing educational interests in public and private telecommunications' developments

There are a number of STEM~Net stakeholders and partners:

- K-12 Students
- School of Continuing Education, MUN
- Computing and Communications, MUN
- Schools
- Newfoundland and Labrador Teachers' Association (NLTA)
- Private Sector Partners
- Educators in the K-12 system
- Faculty of Education, MUN
- Department of Education
- School Districts
- SchoolNet
- Libraries
- Parents
- Other Public Sector Partners

All schools and teachers in the Avalon West School District have STEM~Net accounts. Students also obtain accounts when engaged in projects.

STEM~Net has achieved national recognition and is a significant leader in educational computer innovation. Located at Memorial University, it uses server space provided through the University's Computing and Communications Department. Through this Department, it is linked to CANet, the national Internet backbone. It is the only Internet provider in the Province that has access to all the schools within the Province and with the capacity to handle the requirements of the new Centre for Distance Learning and Innovation. Although well known because of its pioneer work in providing all schools with Internet access and all teachers with free e-mail accounts, STEM~Net is much more than that. The Directors of the educational network (both current and former) are well known nationally and have established a professional network that allows them access to

information at all levels. At the outset the STEM~Net training officer travelled the Province, including all the rural areas, and almost single-handedly installed equipment (including satellites on school roofs) and trained teachers in Internet use. STEM~Net is responsible for approximately \$500,000 a year of Federal funding, made available to schools through GrassRoots projects. Its Systems Administrator manages a network that is state-of-the-art, and undertakes innovative approaches to new projects that emerge, such as the challenge inherent in delivery of new courses for the Centre for Distance Learning and Innovation. It is the point of entry to national programs, such as those offered through SchoolNet and LearnCanada. In addition, it facilitates research (an example is the evaluation component in its Multi-age Teachers Network Room Project, an experiment to create a professional network for multi-age teachers in small schools).

3.42 GrassRoots

GrassRoots is a national program of Industry Canada's SchoolNet that funds K-12 schools for the creation of innovative and interactive learning projects on the Internet. The GrassRoots Website <http://www.stemnet.nf.ca/grassroots> states as its goals:

1. foster the acquisition of academic, employability, and computer skills in Canadian youth
2. build unique and relevant Canadian content on the Internet
3. integrate Information and Communication Technologies into learning
4. facilitate increased connectivity and training opportunities

All K-12 teachers in Newfoundland and Labrador are eligible to submit projects, and many do. Projects can be of three types:

Individual Projects

These projects are designed and implemented by the teacher and students, are curriculum relevant, and focus on learning activities that can be carried out using the Internet. Individual Projects are placed into one of three categories for the purpose of funding. All projects, regardless of category, are published as shareable resources on the Internet.

Category A - Consists of Activity Projects, which are classroom centred, collaborative learning activities that integrate ICT.

Category B - Consists of Networking Projects that are designed to require the co-ordinated collaboration of other classrooms during the implementation and evaluation stages.

Category C - Consists of Resource Creation Projects, which can be either classroom centred or collaborative. Category C projects are more comprehensive in design and require the development of original resources and unique and innovative ways of using technology.

Block Projects

These projects are usually developed around a theme, unit of work, or subject area. They are comprised of a number of Sub-Projects and involve several teachers and classes in one or more schools and one or more school boards. Each Sub-Project is designed and implemented by a different class and must meet the same requirements as the Individual Projects. The basic minimum product is a WebPage for each Sub-Project within the Block.

Block Projects have two funding options. They are:

Block 1 - Optional Funding Model.

The amount of funding for this model is determined by the category of each Sub-Project in the Block Project.

Block 2 - Fixed Funding Model.

To receive the set amount of funding for this model, the Block Project must have a minimum of eight Sub-Projects. The Sub-Projects may be at varying levels of complexity but they are not categorized as A, B, or C.

School Websites

Funding through GrassRoots is provided to schools that develop a Website provided specific criteria set out for the site are followed:

- organization and maintenance
- content
- interactivity
- student involvement
- ICT skills

In the Avalon West School District, there are currently 153 GrassRoots Projects (see Appendix E for a list). These projects have brought revenue of approximately \$90,000 to the School District. Sites may be visited through the URL: www.stemnet.nf.ca/grassroots or through the School District's homepage: www.awsb.k12.nf.ca

3.43 SchoolNet News Network (SNN)

SchoolNet News Network (SNN) is a cyber-school for aspiring journalists, a multimedia publishing and broadcasting forum for their stories, and a resource centre for teachers. SNN is open to all students in Canada. STEM-Net administers the project and it is sponsored by Canada's SchoolNet Program. SNN provides the following description of the two programs they offer:

SchoolNet News Network's *Newsroom* is a place where students receive story ideas and assignments, practical advice on writing, and journalism issues. Here they are able to work with a professional journalist through the Media Mentorship program. Students can also submit their articles for publication in the SNN Monthly journal.

SNN's *In the Classroom* works with teachers to help develop writing and journalism skills. These skills influence every subject in the curriculum. The Classroom provides lesson plans and activities to integrate online journalism into the classroom. It also features profiles and advice from regular SNN Teacher Contributors and a Teacher Message Board.

The information in the preceding section can be found on the SchoolNet News Network's Website <http://www.stemnet.nf.ca/snn/newsnn/>. This project supplements the curriculum and is available to all schools.

3.44 Bridges Project

The Bridging Regional Industrial Downtime Giving Educational Support Project (BRIDGES) designed by the Partnership Co-ordinator, is a partnership between the Avalon West School District and Human Resources Development Canada. The Project began in January 1998 as a pilot project and continues to exist in the District. Its origin was based on the fact that the Voisey Bay Nickel Company had stated that no employee would be hired without basic computer skills.

The pilot project focused on providing information technology education required for students to become more competitive in the modern world; for teachers to become more effective in the classroom; for young graduates to become more employable in the global village; and for industrial workers to become more computer literate as required for all future Voisey Bay jobs. It was hoped that all community residents of the Bay de Verde Peninsula would benefit from this program.

The BRIDGES Program provides school-to-work transition links; recent Information Technology (IT) graduates provide this training service. Through assisting schools with the installation and operation of computer software and hardware, and by providing computer workshops for students, teachers, and construction workers, the young graduates will gain the practical job experience that will make them more competitive in future job markets. During the school day, graduates assist students and teachers with their studies by helping them learn software such as WordPerfect, helping them use the school computer networks and satellite dishes for Internet searches, giving individual and small group tutorial help, and being available when classes run into problems using the computer.

With the help provided by BRIDGES, teachers benefit beyond the regular school days. Their frustrations with learning new software, operating new hardware, accessing the Internet, and applying technology to learning are reduced. By having a resource person affiliated with the school who provides individual and group teacher inservice, these challenges help build teacher confidence and competence.

The technology graduates offer evening and weekend training sessions to young students, their parents, and community construction workers. Participants are introduced to programs and concepts such as Windows, Internet, and Word Processing.

BRIDGES has operated since 1998. Highlights of the project are as listed below:

- **January 1998:** Pilot project started. Employed one co-ordinator and nine facilitators to work with 18 schools in the Trinity Conception Area. Provided basic computer training to more than 1500 people from start-up to May 1998.
- **March 1998:** Expanded to include three more schools. Created three more facilitator jobs and the response from the public was equal to that of the Trinity Conception Area.
- **1998-99 school year:** Approximately 3000 adults and 7500 students involved.
- **1999-2000 school year:** Offered in 17 schools. Employed nine facilitators. 1061 adults and 1500 students participated.
- **2000-2001 school year:** BRIDGES broadened its focus and became an acronym for "Bridging Rural Individual Digital Global Employability Skills".
- **2001-2002 school year:** BRIDGES will continue.

3.45 Computer KIOSK Program

Approximately 20-25 computer Kiosk sites are being placed in schools and communities to enhance accessibility to the ACCESS project (A Community Computer Educational Support System). The Kiosks are open to the public during the school day and for eight hours per week outside the school day. The school district maintains the sites. This is a partnership among the Canada Newfoundland and Labrador - Community Access Program (CNL-CAP), Avalon West School District, and four community agencies.

3.46 SchoolNet Support Parent Program (SSP)

In this program, parents are trained as trainers to teach other parents in the use of the Internet. The parents, after being trained, are also expected to serve as volunteers for schools and to assist teachers and students with projects needing Internet resource support. An IT graduate was hired through a partnership with Industry Canada to run this program, thereby gaining employment and work experience.

3.47 Action Research Project

This a partnership project with the Faculty of Education at Memorial University of Newfoundland, Xerox (Canada), Human Resource Development Canada, and the Avalon West School District. It has enabled two teacher/IT graduates to be hired to help schools that needed support to integrate technology as a teaching tool in the curriculum, as well as to help pilot schools with their ACCESS Project requirements. The two teachers hired for the project have gained valuable work experience and at the same time provided classroom support to the teachers. This is a three-year project (1999-2002).

3.48 MUN/Ascension Collegiate Partnership

This was a unique one-year educational partnership (2000-2001) with Memorial University of Newfoundland and Ascension Collegiate in Bay Roberts. Under the partnership agreement, Ascension students had access to WebCat, an interlibrary loan service at Memorial's QEII Library. The learning resource specialist at the school spent time on campus learning about the various resources and a Website was created to guide students through the resources available to them through the University. Ascension Collegiate was also given access to the extensive computing communications and technology resources at Memorial University, especially those related to product support services.

The partnership also provided for a monitoring program whereby Ascension students, as they decided upon which areas of study to enrol, had the opportunity to seek advice from members of the Memorial University community.

3.49 Learning Village

The Avalon West School District Newsletter, 5(1), April 2001, gives a description of the Learning Village Partnership.

In today's world, students, parents, and teachers no longer have to be in the same room to talk. In Avalon West School District, the new age of "virtual" meetings is being made possible through IBM's Learning Village Software. Six pilot schools are learning how to best use this new package and whether or not this is the solution for all the district's schools.

As with most learning in schools, teachers are the keys to the Learning Village. The teachers are constructing WebPages and this is where parents, students, and indeed the whole world can access the virtual information through the Internet. Eventually, the Learning Village will establish virtual meeting rooms, private conferences, and much more. People will talk from home, work, or anywhere else where there is an Internet site.

A very interesting partnership has grown out of Learning Village. IBM, Memorial University of Newfoundland, Avalon West School District, HRDC, and Knowledge House Inc. are working together to develop Teacher's Village Software. Three trainers have been hired to work in the pilot schools where they will assist teacher interns; co-operating

teachers and university professors develop a software package that will enable them to meet virtually. Teacher's Village Software that is being developed in Avalon West will be sold to IBM all around the world! Technology really has made the world smaller and we all have the potential to compete regardless of where we live.

This project began as a pilot in the 2000-2001 school year and will continue in 2001-2002.

3.5 The Impact of ICT on Teaching and Learning

Principals were positive when asked "What has been the impact of ICT on teaching and learning in your school?"

Generally speaking, the impact has been positive. It has provided the opportunity for students to pursue their interests; thus, it makes for a more diverse program available to students.

Tremendous. This school has won national awards and provincial awards. Students turn in some of the best research projects around. After hours, they teach the community to use the Internet. We have GrassRoots projects more than anywhere else and they are posted on the Web. Teachers do courses as such. They teach each other in the afternoons after school hours. Our technology teacher is the best.

It may not have advanced as quickly as we like but still a lot of good things are happening here.

We found that school and district personnel believed that ICT has had a positive impact on the lives of students, teachers, and the adults of the communities served by the schools. The areas where it was felt that ICT has made an impact are summarized below. The quotes reflect the comments from interviews.

- **Student involvement in more activities/projects.** The major projects are the GrassRoots projects. "Students gain many skills when they are actively involved."
- **Students and teachers socialization.** This socialization stems from doing the GrassRoots projects; especially the Block Projects. "More social interaction makes a better school community."
- **Choice of courses.** High school students can choose from a greater selection of courses, including advanced placement courses in mathematics, chemistry, physics, and biology, through the use of distance education.
- **Students career choices.** Not only can students learn about careers on the Internet, but they can also avail of the courses that allow them entry to post-secondary institutions. They can pursue careers of their interests like ICT, sciences, etc. because they are able to complete the prerequisites.
- **Students work habits.** "Students are putting more pride into completing assignments. They do research that is more extensive by using the Internet."
- **Curriculum enrichment.** Teachers present a more enriched curriculum. They include more activities for students and they offer more information than the prescribed texts.
- **Professional Development.** "Teachers can develop professionally. The Internet provides many programs for teachers. Teachers share lesson plans. In addition, teachers work together in the school to train each other in the using of and the uses of ICT."

- **Continuing education for the adult community.** "The schools are training the adults to become better skilled in the use of ICT skills. They are educating the adults of the communities to understand the value and the potential of ICT."
- **Student summer employment.** "Many students are finding employment in the area of ICT during the summer. They create WebPages, enter data for local businesses, organizations, etc."

3.6 Bandwidth and Schools

Teachers, administrators, and other educators, were asked "What is the greatest problem facing ICT in schools?" The answer was usually expressed in one word: bandwidth. Without adequate bandwidth, educators feel frustrated, discouraged, and limited. Principals' comments reflected this frustration:

We have problems with access. Only recently do we have unlimited Internet access; before that, we would dial 80-90 times and still would not be connected. Downloading is still a problem. We have a satellite but it is not working as fast as it should be.

Up until this past October [2000] the telephone lines here were not digital. After 6 p.m., there was no way of making a telephone call. Even during school hours, it was difficult getting through. It is being improved - you can get on now and have 25-30 computers online. It is faster but we still experience overload.

This second principal describes using an Internet connection that must be activated and deactivated as required. The reason for his inability to make a phone call was due to the popularity of the telephone company's low special monthly rates for unlimited calls between 6 p.m. and 8 a.m. for residential users. The access service available in this school (a 33.6/28.8/14.4 Kbps SLIP account) is very limited and slow. However, the school was more fortunate than some others because at least it could access a local number for Internet access and did not have to incur long distance charges. A neighbouring principal was not as fortunate:

The access here is not as good as in other parts of the district. We can't keep up because we still have to pay long distance charges. Just 25 minutes away they have full time access, here there is still dial-up. It has much improved but it can be improved a lot more.

Another principal explained his situation:

There is a dedicated line for Internet. There is a cost arrangement with the school board. Internet access is deadly slow. No broadband. We do not have a satellite.

The answer to the question "What is the greatest problem facing ICT in schools?" elicited other responses as well. There are concerns about human resources: lack of teachers with expertise on staff, lack of technical support at the school level, lack of teachers' professional development, and lack of training in ICT in the initial training of teachers, many of whom graduated a decade or more ago. There are also problems surrounding the lack of funds to purchase, maintain, and update hardware and software. These problems and concerns are identified and discussed in other sections of this report. The next section will examine the question of broadband, placing the principals' comments in the context of the broader discussion underway nationally and provincially.

3.61 National Broadband Task Force and Schools

The Government of Canada has made a commitment that all communities in Canada will be connected to high-speed Internet access by 2004. To make this promise a reality, the National Broadband Task Force (referred to in this report as the "Task Force") was established in January 2001 by the Minister of Industry. The report of the Task Force, *The New National Dream: Networking the Nation for Broadband Access*, was presented to the Minister on June 18, 2001.

Because of the perceived importance of the Task Force's recommendations on the future of ICT in Newfoundland and Labrador, an Executive Workshop on Communications and Network Infrastructure (referred to in this report as the "Workshop") was held on March 21-22, 2001, in St. John's, Newfoundland. The purpose of the workshop was to discuss the issues and opportunities associated with high-speed communications network development in Newfoundland and Labrador, and to provide input to the Task Force. A critical issue centred on what the government would use as a definition for "community". It was known that a definition of community being considered was based on population: a community would have 5000 people or more. Since the vast majority of Newfoundland and Labrador's communities have fewer than 5000 people, this was a major area of concern.

The Workshop brought together 80 individuals who represented senior-level stakeholders, communications suppliers, and users from urban and rural areas. They included representatives from the Government of Canada, the Provincial Government, Regional Economic Development Boards, industry and trade groups, public sector groups, Memorial University, colleges, school districts, distance learning, municipalities, and voluntary groups. A report of the discussion and recommendations from the Workshop, *Enabling Opportunity*, was submitted to the Task Force on April 9, 2001. Five recommendations were made, all of which are relevant for schools and this study. Using the recommendations from the Workshop's submission to the Task Force as a framework, the findings of this study and the recommendations from the Final Report of the Task Force will be summarized and discussed, with the implications for ICT in schools being examined.

3.611 A Clear and Inclusive Definition of "Community"

The Province of Newfoundland and Labrador has two areas: the island of Newfoundland, which has a total area of 111,390 square kilometres, and Labrador, located on the mainland of Canada, which covers 294,330 square kilometres.

The Province has many miles of coastline: 9,656 kilometres on the Island and 7,886 kilometres in Labrador. Since fishing in the North Atlantic was the traditional industry, the vast majority of communities, with a total population of 549,705, are scattered along this approximately 17,000 kilometres of coastline. The most populated part of the Province is the Avalon Peninsula, located on the southeast tip of the island and site of St. John's, the capital and largest city. The population of the St. John's Urban Region, as defined by Operation Online Inc. in their *Workshop report (2001)*, is inclusive of 13 communities surrounding the capital city and has a population of 176,141.

According to the 1996 census, there are 745 unique communities within the Province. Consolidation since then has resulted in a total of 662 communities. Outside the St. John's Urban Region, there are only 13 communities with populations succeeding 5,000. There are 584 communities with fewer than 5,000 people. Within the Province, 98% of the communities have fewer than 5,000 people. There are 207 communities with schools and a total of 337 schools.

The Trans Canada Highway (TCH) stretches from St. John's in the southeast corner of the island, to the center of the island (the Gander and Grand Falls-Windsor areas), across the central interior to the west coast

(Corner Brook area), and then to the southwest, to Port aux Basques. Thirty-five communities (population of 258,368) are estimated as adjacent to this highway.

The first recommendation of the Workshop is to "Ensure and communicate a clear and inclusive definition of 'Community'." It asks that the definition used by the Task Force not exclude smaller communities that may lack public buildings or not be incorporated. It asks the Task Force to clearly communicate to communities their role in developing solutions, and asks communities to "integrate network access plans into their municipal infrastructure development strategies" (p.10).

In the Avalon West School District, only three communities are identified in the 1996 census as having populations greater than 5,000 (Bay Roberts, pop. 5,472; Carbonear, pop. 5,168; and Placentia, pop. 5,013). Within the District, there are schools located in communities with populations less than 5,000. With declining enrolments and out-migration in most areas of the district, the projection is that only one town will likely have a 5,000 or more population in the near future. Educators point out that if these schools are to offer distance learning courses, they must be able to avail of high-speed access. Even schools in the largest centres draw their students from communities of all sizes, and if these schools are to access the Internet and engage in distance learning, they too need high-speed access.

The Report of the Task Force supports this viewpoint. It reflects a concern for rural students in that it stresses the universality of access - that "all Canadians" in "any part" of the country should have access to broadband network services. The overarching principle states:

We believe, as a matter of urgency, that all Canadians should have access to broadband network services so that they can live and prosper in any part of the land and have access to high levels of education, health, and cultural and economic opportunities. (p.9)

There are nine other guiding principles articulated by the Task Force. Universal access is either stated or assumed in all nine. The fourth principle speaks specifically to the community access:

All communities, institutions, businesses, and individuals in Canada should have equitable and affordable access to broadband services and to the widest possible range of content and service providers. (p.9)

The Task Force provides a definition of community:

A community can be defined as a locality, which, among other things, has the following attributes: a name, a distinct physical location and territory, and a population. (p.10)

Their discussion of this definition indicates the need for flexibility, and although the definition is "geographic for purposes of defining infrastructure gaps" the Task Force acknowledges that it will also include "communities of interest" (p.10). This is particularly important to small communities such as those in rural Newfoundland and Labrador. The Province has never had a county system. However, implementation of the Strategic Social Plan of the Province will require integration of services at a regional level, and may result in a similar system to the county system. The definition of "community" must be flexible enough to cover such regional forms of government.

3.612 A Clear Definition of "High-Speed Internet Access"

The Task Force itself identified one of its greatest challenges as creating a definition of "broadband". International standards are based on transmission

rates (i.e., 1.5 or 2 million bits of information every second) but the Task Force found that these standards vary with location and evolve over even short periods. Instead of using transmission rates, the Task Force decided to define broadband in terms of what it could do:

A high-capacity, two-way link between end user and access network suppliers capable of supporting full-motion interactive video applications delivered to all Canadians on terms comparable to those available in urban markets by 2004. (National Broadband Task Force, 2001, p.2)

Broadband services that meet this standard could, for example, support video conferencing between groups of people located in different geographical locations. The Task Force report suggests a minimum two-way, or symmetrical, transmission speed of 1.5 Megabits per second (Mbps) per individual, with higher speeds required to handle emerging applications.

Currently, connectivity is lacking in all of rural Newfoundland and Labrador. Only the largest centres have optical fibre - St. John's/Mt. Pearl, Grand Falls/Windsor, Gander, and Corner Brook/Stephenville. The Workshop submission to the Task Force argues that targets should be set beyond the existing needs of communities. They argue that 1.5 Mbps transmission rates are an unacceptable goal for high-speed Internet access. They claim that such speeds are not fast enough to support the effective delivery of advanced private and public services (such as current and emerging technology for distance learning). They argue that by 2004, every household in Canada should have basic access to a minimum 1.5 Mbps with an option to access at least 10 Mbps or higher, and every workplace should have access to a minimum of 100 Mbps. Such access, they point out, would allow for a variety of digital media such as real time video, data, and voice. Their view is that planners must expect demand to increase, and that the infrastructure should be designed to accommodate 100 Mbps to 1 Gigabit per second (Gbps) to the end user by 2008.

The controversy⁵ that greeted the Task Force Report when it was released is a clear indication of the need for a concise definition of what is "high-speed" or "broadband." Rural administrators in this study fear that the definition of minimum requirements will be inadequate for their needs, and that they will fall behind other parts of Canada in their ability to access the Internet. Most have little or no first-hand experience with broadband but they are aware of the potential opportunities it provides. They also know that they need it to use ICT effectively across the curriculum.

⁵ A number of editorials and letters appeared in National papers following release of the Report. A story in the Ottawa Citizen, Thursday, June 21, 2001, entitled "There's a reason they call it 'remote'", illustrates the most negative viewpoint. Joan Bryden in the Ottawa Citizen expresses the opposite viewpoint in a story, Wednesday, June 27, 2001, entitled "Minister defends Internet access plan."

3.613 Optical Fibre as the End Goal

Technology leaders in the Workshop agreed that optical fibre is the technology of choice and offers the greatest opportunity for the future. Their recommendation to the Task Force is that they choose the technologies with the least limitation (optical fibre) and plan for longer-term goals. Their argument is that "it is economically more efficient to put in place sufficient infrastructure now to meet opportunities in the future" (p.11). They affirm that communities should not accept secondary solutions as end goals, that satellite, wireless, Digital Subscriber Lines (DSL), and cable modems should be considered only interim measures.

Why use optical fibre rather than satellite, DSL, wireless, or cable? A search of the literature (LearnCanada, 2001; Task Force, 2001; Workshop, 2001) and findings from interviews conducted for this study reveal the following infrastructure funding considerations:

Fibre Technology. This is the most cost effective in the long term. It can be upgraded easily once the fiber infrastructure is in place. This means that although it is an expensive job to install the cable fibre, it can last for many years once it is installed. Partly, this is because it is cheap to "overbuild" or to install and trade/swap fibre. This latter feature refers to what is known as "dark" fibre - empty fibre that can be built in and used when needed.

Satellite. Satellite can provide medium-speed Internet access regardless of geographical location. Some see it as being the most promising for rural and remote regions and its biggest disadvantage is cost - it is expensive. Pilieci (2001), writing in the *Globe and Mail* (July 3, 2001) used the headline: "Rural residents can get high-speed Internet now. The catch? Satellite service is pricey." For example, in response to a tender call from SchoolNet, Telesat - a satellite company - responded with a bid to provide two-way transmission to schools in Newfoundland and Labrador at the cost of \$1200 a month per connection. A tender call in Newfoundland and Labrador received the bid of \$1500 a month per connection. Schools in rural areas would require large subsidies and the money is not available. The costs are not spread over long periods, for if the connection is to be upgraded, it means a complete start-over. There is no infrastructure in place to upgrade, as is the case with fibre.

There are other disadvantages to Satellite technology. A connection (bandwidth) is about one half of a DSL connection, typically used for individual connections. This makes it inadequate for networking, due to slowness. There is also a latency issue related to the distance the signal travels. Currently, 160 rural schools in Newfoundland and Labrador have satellite download access with shared 400K download and 28K to 56K telephone modem upload accesses. Their rates are currently subsidized and the contract is soon to expire. If they have to pay market value for connections, these schools will not be able to afford the connection and will have to revert to low-speed dial-up modems. Another problem associated with the current satellite technology is the fact that the system is overloaded. Schools in Newfoundland and Labrador share satellite space nationally on a SchoolNet channel that is operated through the Telesat Network Operations Centre near Toronto. By 10:30 a.m. (when the rest of Canada begins using this system), it is slow and difficult to access.

Wireless. Wireless is cheap and easy to install. It operates from point-to-point on ground, normally from tower-to-tower. Geography, distance, weather, etc can affect it. It works best in a contained area, not over long distances. The geography of Newfoundland and Labrador makes it of limited value.

Cable and DSL. In the larger centres, subscribers can install Cable and DSL (Digital subscriber lines). These can be used to connect to the ends of fibre, but require the infrastructure in place. This service would only be available in sections of large centres that have sufficient subscribers to justify the provision of cable services. Areas are specifically wired and set up for such services, and distances from sub-stations are short. There is no indication that this service will be available outside the largest areas, and it does not offer a solution for rural areas.

3.7 A New Model for Infrastructure Development and Service Delivery

Lloyd Axworthy, former foreign affairs minister (1996-2000) and currently director and CEO of the Liu Centre for the Study of Global Issues at the University of British Columbia, addressed the question of who will control tomorrow's broadband world in an article in the *Globe and Mail* on July 2, 2001. He discussed what he saw as a "glaring disconnect" in the report of the Task Force. He pointed out that instead of addressing the matter as a public policy issue, the Task Force concluded that broadband networks' services and applications would, to a large extent, be developed by the private sector in response to market needs and public requirements. Axworthy's view is that "a digital broadband infrastructure is too important to

let that happen."

As Axworthy argues, what is at stake here is who controls and has access to the "most expansive channel of communication ever imagined." His concern is that Ottawa has "focused on capacity, speed, and access" instead of on "equity of use and a public plan." He introduces the possibility not only of e-commerce and e-government, but also of e-community:

Missing is the potential for Web-based community development, for connecting researchers around the world to look at our common problems of disease, literacy, and security, of training and educating in the vital field of conflict or crisis management or environmental security, forging a global public network of information and interactivity that can spur the advance of democratic development.

He calls for two things to happen: first, a clear policy of access for community-based, non-profit public institutions; and second, means of financing the public research, pilot project, application and implementation of public uses of the Internet both within and outside Canada. His case is very straight-forward - the public ownership and use of broadband networks must be protected, so if the private sector wants access to a fully wired nation, then they must contribute not only enough to cover their own costs but also part of the cost of funding a public agenda for this technology.

Axworthy is calling for a new model for the development of the infrastructure and services for broadband access that includes public as well as private interests. He introduces the example of a public trust fund to support the development of digital information and services for educational, artistic, and civic activities. The U.S. Digital Promise Project is funded with \$10 billion from the anticipated public auctions of telecommunications frequency spectrum to digital wireless companies. In the U.S., according to a Digital Promise spokesperson <http://www.digitalpromise.org>, "the Federal Government has invested billions in wiring schools through its E-rate program. We think it's time to turn our attention to content, which is equally important." To do so will be expensive, especially when broadband networks are available to support video and high-quality audio as well as interactivity. Axworthy suggests that such a public trust could support such endeavours and also pay for services in remote and rural areas.

For this to happen, the Federal Government must have a clear policy: "This task requires a careful balancing of our contemporary goals and Information Technology capacities with those intellectual, social, and cultural traditions of our communities." This places a heavy responsibility on government:

In today's marketplace, where the Telcos and corporate giants have a lot to say in fast-tracking broadband access and services, our governments have a greater responsibility to maintain that intellectual and civic sense of our past, present, and future.

If they accept this responsibility, the Federal Government will need to be prepared to stand behind its commitment to provide all communities in Canada with equitable and affordable access. Governments (Federal, Provincial, and Municipal) will need to provide leadership in establishing partnerships to build and maintain the infrastructure.

In Newfoundland and Labrador, there is no provincial policy or vision in building the infrastructure. There is no policy statement from government in which high-speed Internet access is identified as an essential service. There is no Province-wide co-ordination. The result is that different public agencies and institutions are proceeding independently although all must deal with the same telecommunications challenges. The main Telephone Company in the Province is part of the Aliant Inc. group of companies formed with the merger of the telephone companies in Atlantic Canada. 53 % of Aliant is owned by BCE (Bell Canada Enterprise). BCE describes itself as Canada's leading Internet Company. Aliant Inc. describes itself as "one of Canada's

leading high-tech companies" and reported solid growth in revenues for the second quarter of 2001, increased by 17%. As a private for-profit company listed in the stock market, with a Board of Directors, Aliant has to invest wisely to ensure that profits continue. Its Board of Directors and shareholders will have to agree that services provided in the Province are good for business.

Although there are a number of systems used (cable or telephone lines), all Internet access in the Province relies on Aliant, Inc. The company owns the two optical fibre lines that cross the Province, and the telephone lines. An example of a rural community illustrates the way the system works. In larger rural towns that service a region, there may be a number of public services. The local hospital is using Telemedicine - satellite technology, Province-wide, two-way transmission that is very expensive. The local school is linked via the Internet through the provincial educational computer network, STEM-Net. The college system is connected through the college network. The Provincial Government offices are linked through their network. The RCMP and Federal offices have their own networks. In addition, if available, most individual subscribers use dial-up telephone lines for home use (or the cable high-speed version, if available). Every one of these agencies, organizations, or groups has negotiated contracts through the Aliant Company.

What is the alternative? One is Alberta's SUPERNET. This network aims to connect every hospital, school, library, and Provincial Government facility in a high-speed broadband network that will be available in 422 communities across Alberta. The goal is to improve the services in e-learning, telehealth, e-government, and e-commerce. The Provincial Government is working out a contract with a consortium of companies, headed by Bell Intrigna, to build new fibre lines and lease or buy existing lines. The estimated time of completion of the project is three years. Additional information concerning SUPERNET can be found at www.innovation.gov.ab.ca/supernet.

Provincial leaders in Internet access in schools of Newfoundland and Labrador are inspired by this model and see Alberta's solution as a good example towards the creation of a new model - A Newfoundland Network, with partnerships between governments and the telecommunications companies. The vision is that of the Provincial Government taking the lead, working with the Federal Government, creating a plan to be used when and as funding becomes available. They support building an infrastructure that all users in a community could use for two-way broadband capacity. Others outside education also see the need for this infrastructure. In July 2001, an advertisement was placed in newspapers in Newfoundland and Labrador by 18 of the 20 Regional Economic Development Boards after the release of the Task Force Report. It read:

We, eighteen of the economic zones of Newfoundland and Labrador, believe that the future growth of the Province is contingent on affordable, reliable high-speed Internet access that will provide all regions of the Province with the capability to conduct business, educate their young, and diagnose and treat health problems. This means that broadband access, or high-speed digital connection to the Internet, is more than a luxury. It is now a necessity if our communities are to grow and prosper. The provision of quality telecommunications infrastructure must become a priority for regions and communities throughout Newfoundland and Labrador.

The advertisement supports the recommendations in the National Broadband Task Force report. It calls on provincial and municipal leaders, in partnership with Regional Economic Development Boards, "to make the provision of this infrastructure a priority and put in place a strategy to ensure Newfoundland and Labrador's place in the global economy."

3.8 Ensure Equitable and Affordable Access to All Communities

At the heart of this discussion is the question of equity and affordable access for all Canadians. The discussion of the widening "digital divide" between those Canadians with broadband connectivity to the Internet and those without has been forcefully presented in submissions to the Task Force. The submission, *Rural and Remote Broadband Access*, from The Rural Secretariat (April 12, 2001), makes the point that broadband technology is even more important for rural Canada than others, due to distances from markets, geographical remoteness, low population density, and reliance on seasonal/cyclical industries. Broadband technologies offer the potential to overcome many of these challenges. Yet, they report that the digital divide is widening, and rural Canada is falling further behind in its access to the Internet. The Rural Secretariat's network of over 7,000 people in rural and remote Canada identified access to Information and Communication Technology as one of the top eleven priorities for the development and sustainability of rural communities.

The Task Force members clearly heard this message and the recommendations reflect their support. The eighth Guiding Principle states:

Government broadband infrastructure development programs in service of the specific ends described above [in the Task Force Report] as well as the general public interest, should focus on those communities where, without government involvement, the private sector is unlikely to deliver such services, and should be guided by such conditions as sustainability, technological neutrality, timeliness and affordability, and the value of an open and competitive market. (p.10)

The ninth Guiding Principle is also reassuring to educators interested in equitable and affordable access in rural areas:

In defining broadband infrastructure development initiatives, governments should achieve sustainable broadband access to every public learning institution, public library, health care center, and other designated public access points in the country. (p.10)

If implemented, these recommendations would do much to allay fears expressed by teachers and administrators involved in this study. For schools and rural communities, there would be assurance that they would avail of e-learning opportunities. It is clear that many such schools and communities will never have the population density to make it economically feasible for the private sector to provide broadband access. Currently, optical fibre runs through a number of Newfoundland and Labrador's rural communities. There is enormous capacity that can allow these communities entry to high-speed access. In fact, Axworthy (2001) noted that across Canada, only 5 % of recently installed fibre-optic capacity is being used for commercial applications. The reason why the rural areas cannot be provided access is that the connection costs are too high to make it economically feasible for the telecommunications companies to put in the necessary hardware and software. Without governments' involvement, rural and remote towns will be placed in the frustrating situation of knowing that the information highway passes through their boundaries without any on- or off-ramps being provided for their use.

In the past eight years, a considerable degree of progress has been made in access to the Internet in rural Newfoundland and Labrador. In September 1993, STEM~Net went online and teachers in Newfoundland and Labrador were among the first to be connected to the Internet and have access to the World Wide Web. STEM~Net was a founding member of SchoolNet when it was officially launched in Newfoundland and Labrador on October 15, 1993. Through a partnership with the local telecommunications company, STEM~Net and SchoolNet initiatives have provided many opportunities for schools and teachers to integrate ICT across the curriculum. Since STEM~Net had a Provincial Mandate, rural areas were linked for the first time through computer technology. They were treated as equal players and

could boast of Internet access equal to many schools in the larger centres. An external evaluation of SchoolNet (Sheppard, Stevens, Boone & Furey, 1999) documents some of the successes and the challenges encountered in the process, and concludes that SchoolNet programs, projects, and services have had a positive impact on schools in the Province. They reported that 93% of schools in the Province had considerable access to the Internet, and "Furthermore, the SchoolNet DirecPC Satellite Project is seen as the greatest technological advancement in rural schools since the introduction of the computer and Local Area Networks" (p.181).

This study found that although educators believe they have made considerable progress in recent years, there is currently great uncertainty as to whether or not this progress will continue. As in the evaluation study conducted by Sheppard et al., educators interviewed in this study could not distinguish between STEM~Net and SchoolNet. Successful SchoolNet projects, such as the SchoolNet GrassRoots program and the SchoolNet DirecPC Satellite Project are all seen as being STEM~Net projects. This is not surprising since STEM~Net is the SchoolNet partner in this Province. The result, however, is that threats to the one are seen as threats to the other.

The Provincial Department of Education is in the midst of educational reform. The recommendations of the Ministerial Panel on Educational Delivery in the Classroom (2000) has led to the creation of a Centre for Distance Learning and Innovation. A director and staff have been hired and the first courses began in September 2001. The Ministerial Panel Report also spoke directly to the future of STEM~Net:

The Panel envisions a significant role for STEM~Net in the new system. STEM~Net was established at least partly with teacher professional development in mind, but this has not become a core part of its operation. Instead, STEM~Net serves a more loosely defined function involving teacher communications, Internet access, support for schools in establishing Internet communications, research and development, and similar activities. It would be logical to make STEM~Net the technical and communications branch of the Centre for Distance Learning and Innovation. (p.79)

The future of STEM~Net is uncertain. Currently, it has no government commitment of funding beyond March 2002. Its new role may or may not be consistent with its old role. Therefore, the future of SchoolNet programs is also seen as uncertain.

The STEM~Net/SchoolNet contract with the telecommunications company for satellite access is also about to expire. The renewal of a contract that is affordable is uncertain. The players have changed. The previous contract included STEM~Net, SchoolNet, school districts, NewTel Communications (a member of the Stentor Alliance), Atlantic Canada Opportunities Agencies, and the Department of Education (through Canada-Newfoundland Co-operation Agreement on Human Resources Development). One very important player has changed. NewTel Communications, which used the slogan "The Home Team" in its local advertising, is no longer part of the Stentor Alliance. This alliance merged with the other telecommunications companies from the remaining three Maritime Provinces, to form Aliant, Inc., 53% of which is owned by BCE (Bell Canada Enterprises). As one ICT leader commented when interviewed in this study, "NewTel is no longer the Home Team." The question being asked is: Will Aliant, Inc. be willing to continue the subsidy for satellite use by schools in rural Newfoundland and Labrador? Currently, no one knows the answer. What then is the future of the SchoolNet DirecPC Satellite Project? No one knows. If those who are aware of this situation seek answers from the Provincial Government, they do not find any for there is no provincial plan for ICT in the Province. On a national level priority has changed as many provinces no longer need these services. In fact, DirecPC largely served First Nations Schools, and the schools in Newfoundland and Labrador were added on. However, the DirecPC Satellite Project is no longer needed for schools of First Nations.

The headline of a story that appeared on CBC News Online Nova Scotia on July 20, 2001 read, "New plans to bring Internet to First Nation reserves." The story describes how the Federal Government is spending \$1 billion on a high speed Internet network that will link every one of the 633 First Nations' reserves in the country. National Chief Matthew Coon Come is quoted as saying, "We missed the industrial revolution. We're not going to miss the information technology highway."

The broadband issue, therefore, is urgent in schools in Newfoundland and Labrador. Only if public policy mandates that rural areas - those that will never be economically attractive to private sector investors - must have equal access to high-speed bandwidth, will there be any assurance that rural schools will be able to keep up with educational initiatives involving ICT.

3.9 Conclusion

Information and Communication Technology (ICT) is a major component in the education system. For the past decade there have been considerable curriculum developments to ensure that technology issues are addressed and courses prepared to include technology outcomes. *The Curriculum Framework for Technology Education: Living in a Technological Society* has provided a framework for planning that is used throughout the curriculum. The identification of "Technological Competence" as one of the Essential Graduation Learnings has led to the creation of six General Curriculum Outcomes that cut across disciplines at all grade levels. These six outcomes are described in Section 3.1 and include: Nature of Technology, Technological Problem Solving, Technical Input, Technical Literacy, Life-long Learning, and Technical Communication.

Although the whole program is envisioned from kindergarten to High School graduation, only the Senior High School program is developed. Yet, we found that many positive ICT activities were occurring at all grade levels. Schools and districts are implementing the Outcomes related to Technological Competence as they see appropriate and as their resources allow. Much of the funding is coming from external partnerships. This study revealed that the Federal Government is a key partner, providing funding for many of the ICT programs in schools through partnership agreements with the Provincial Department of Education and school districts.

The importance of the Partnership Co-ordinator was supported by this study. The Co-ordinator's role involved finding out about funding programs, establishing a personal network to facilitate communication, seeing the potential of funding programs for education in the K-12 system and the school district and schools, writing proposals, and working with others to manage projects. All of this was of crucial importance in the partnerships we found in the Avalon West School District. Without it, many projects, we feel, would not have occurred. It is simply not realistic to expect school principals and classroom teachers to perform a Co-ordinator's role in addition to their primary roles.

Of the externally funded programs and projects, several stand out as being very significant. STEM~Net is recognized within the Province at all levels as an educational computer network and Internet provider. STEM~Net accounts are found in all schools in the Province. STEM~Net is a partner with and administers SchoolNet programs, such as GrassRoots and SchoolNet News Network (SNN). It is a leader in LearnCanada (www.learnCanada.ca). These programs bring substantial funding and support to ICT use in schools. It is difficult to imagine life in schools without this service. Yet, STEM~Net funding is not secure and its future is uncertain.

Another significant Federal partner in the Avalon West School District is Human Resources Development Canada (HRDC). The BRIDGES Project, funded through HRDC, has resulted in computer training for thousands of

school district personnel, economic development people, employers, and youth agencies. Their findings paint a bleak picture. Key employment trends noted include:

- low rates of students obtaining summer employment and a rate of part-time employment during the school-year which is less than half the national average
- youth in the Province working for the lowest minimum wage rate in the country
- youth disproportionately filling the available part-time employment slots in the job market, missing out on both pay increases and training or professional development opportunities
- youth receiving low wages and not accumulating wage-related or seniority-based benefits packages (p.3)

The report identifies a number of issues or themes that emerged from focus group discussions. They include:

- Employers are insufficiently involved in the planning of youth employment programming. "The result is a mismatch between what skills youth bring to the workforce, and what employers say they need" (p.5). Mechanisms for making employer needs known directly to young people do not exist.
- Resource-training budgets need to be built into youth employment programming. There was little or no support for the outlay of time and resources by employers for the hiring, supervising, and guiding of young people.
- Rural parts of the Province have much less access to programming than urban areas. "The bulk of youth employment enhancement programs are based in the larger urban centres of the Avalon Peninsula, in particular St. John's, where the youth population is highest and most stable" (p.8). It was reported that rural youths "had very little access to employment programs unless they were offered in the regular school environment, and that transportation or geographic distance combined to keep them out of programs" (p.8).
- Major efforts are underway across the country and within the province to increase rural access to the Internet but "there is still a tremendous lag behind urban areas in this regard" (p.8). It was felt that schools and communities should focus not only on hardware, but also on plans for training.
- Youth employment enhancement programs are not connected with each other in any meaningful way:

No one on the Avalon Peninsula is making it their formal business to let youth serving agencies and their partners know what others are doing in a systematic or focused way. Youth-serving agencies see this as a critical failure. Programs are developed in isolation of research and in isolation of evaluation results from other programs. Skills, ideas, new technologies, and innovations in programming are not shared. (p.9)

- "The standard school curriculum - except for specialized courses in Career Development - is developed in isolation from employment enhancement goals or employer needs." (p.10)
- It was found that programs need to be more open and friendly to youth themselves:

Few programs are offered at alternate - for example evening - hours to ensure youth from schools are able to access their

services. Employment enhancement services are seasonal; almost no service is offered to youth on a year-round basis; access to information on programs is seldom available until a program is up and running; and advance information is usually non-existent. These issues combine to ensure that the focus on youth employment services is oriented toward youth who are already skilled at obtaining services or who are near the opportunities. (pp.10-11)

- Teachers and schools have to be involved but they need support:

Schools are already experiencing pressures associated with meeting social needs in an era of declining enrolments; major emphasis on stay in school activities; loss of guidance counselling and specialized teaching positions; lack of social work services in schools; and, increasingly complex curricula. Educators [...] identified all of these issues. They were in agreement about the need to work with youth on career and employment issues, but clear about the challenges of doing so. Teachers alone cannot be expected to develop and deliver new programming without support and resources appropriate to the tasks. (p.11)

- "There is a strong belief that youth are despondent and have given up, at an early age, on their attempts to secure meaningful employment" (p.11). This negative view of young people, they claim, emerged in every planning session held. Their frightening interpretation was:

For employers, it was identified as a failing work ethic; for youth serving agents it was identified as an overall pessimism; and for youth themselves it was identified as a realistic response to the overall lack of jobs" (p.11).

- The writers of the report contend that there is pessimism and there is a genuine concern for the future of young people:

Regardless of the interpretation, the sense of despondency is real and most of those who participated in the Youth Institute Planning Project expressed fear for a long term pervasive and negative impact on the personal development of the Province's youth. If allowed to remain unchecked, this attitudinal shift toward inactivity and lethargy, they feel, will further marginalize youth as a group of potential wage earners and productive citizens. (p.11)

- There has developed an attitude of educating students to leave rather than to stay. The project found that "some youth have begun to think of Newfoundland and Labrador as a retirement option following a productive work life conducted elsewhere in the country" (p.12).
- Access to information is difficult to obtain. The participants in the discussions saw youth services as delivered by "three levels of government, by community organizations, and by private operators, none of whom are centrally linked by goals, objectives, funding deadlines, or reporting requirements" (p.14). They concluded "No one organization is responsible for co-ordinating youth information" (p.14). Their final conclusion is that many youth services are working in isolation, and that "parents, youth, employees, and agencies do not know what programs are available to them and when applications should be made, or to whom" (p.14), especially in rural areas.
- There is a need to develop a better method for sharing information. In

1998, they reported that "No mechanism exists to gather, store, centralize, or disseminate this information" (p.15).

- The report noted that "Parents are not formally or collectively involved in planning youth employment enhancement programming" (p.16). The school was seen as one way to increase parental involvement.

A Statistics Canada Newsletter, Rural and Small Town Canada Analysis Bulletin (February, 1999) adds to this picture through shocking statistics of the difficulty young people in Newfoundland and Labrador experience in finding employment.

- Among individuals 15-29 who are not students, the unemployment rate in rural areas is 40% - the highest in the country.
- Newfoundland has the lowest full-year full-time employment rate of rural youth (non-students) with a rate of 22%. (The national average is 39%).

A report prepared by Human Resources Development Canada, *Profile of Canadian Youth in the Labour Market, (2000)*, shows that out-migration is the solution many young people adopt to escape this situation. The Report reveals that from 1980 to 1990, Canada's youth population declined by 17.3%, and in the same decade, Newfoundland's youth population declined by 9.2%; in 1990-99, Canada's youth population increased by 2.9%, whereas in Newfoundland and Labrador it took a steep decline: 22.7%. The Province, according to these statistics, led the country in losing its young people in Canada, "averaging 2,800 per year in the 1990s or a net loss of about 3 % of their youth population each year" (p.21). The Report also reveals that whereas young people in rural areas of other Provinces migrate to urban areas inside their Province, Newfoundland and Labrador was an exception, and young people move mainly to urban areas outside the Province.

4.2 The Economic/Enterprise Provincial Curriculum

Educators have not ignored the seriousness of youth unemployment. Enterprise education started out as a pilot project in 1989 at the senior high level with three school boards developing three local courses. In 1992, enterprise education gained provincial interest and these locally established courses became the introduction to further course development in order to meet newly implemented provincial requirements in this subject area. Since then, many changes have occurred in the economic/enterprise curriculum offered in secondary schools. For example, since 1992, there have been new courses developed and implemented, and this area of study has been included in the graduation requirements for the Province. This makes Newfoundland and Labrador the only Province in Canada to include enterprise courses as part of the graduation requirement.⁶

⁶ A detailed discussion on the history of Economic and Enterprise/Entrepreneurship Education in the senior high school program is contained in Community Economic Development and Small Rural Schools across the Atlantic Rim (Brown, 2000).

Enterprise education is part of the kindergarten to intermediate prescribed curriculum. There are specific resources designed for use across the curriculum rather than as independent subjects. According to the provincial consultant for social studies/ economic education, there are no plans to have a separate enterprise curriculum in primary and elementary grades; rather, concepts will be integrated across curriculum areas. The resource packages developed for each level have activities, including entrepreneurship activities, which are to be integrated into the social studies and language arts programs.

When discussing enterprise/entrepreneur education, the provincial

consultant for social studies/enterprise education wanted to make it very clear that the focus of the Department of Education is primarily enterprise. She stated:

The Department of Education's main focus is enterprise education and not entrepreneurship. Entrepreneurship deals with the developing of small businesses and helping students to run those businesses. The Department leaves that job to the business schools. Entrepreneurship is only one part of enterprise. It is only one component. Enterprise is much broader. It deals with the development of skills, attitudes, and content that are needed.

An examination of the economic/enterprise prescribed curriculum for Newfoundland and Labrador indicates the extent to which regional/community economic development strategies exist within the Province. Small rural schools are expected to implement this curriculum, just as larger schools are.

4.21 Primary Curriculum

As indicated earlier in this Chapter, enterprise education is not a stand-alone area of study at the primary level. Instead, it is integrated into other curriculum areas. The Department of Education has provided a resource for the primary level entitled *We Can Do Anything! Learning Through Enterprise: A K-3 Teacher Resource*⁷. It was developed as a partnership project between the Departments of Education of New Brunswick, Newfoundland and Labrador, and Prince Edward Island under the auspices of the Atlantic Provinces Education Foundation and the Atlantic Canada Opportunities Agency. Extracts taken from its Introduction provide an explanation of the purpose of the resource, and the philosophy of enterprise education at the primary level:

⁷ Henceforth referred to as *We Can Do Anything!*

This resource was developed to support teachers in their efforts to provide young children with experiences to develop a more enterprising spirit. It encourages a collaborative, experiential, and reflective approach to learning through active involvement. The infusion of enterprise education in the kindergarten to grade three learning environments can provide teachers and children with exciting and innovative paths to achieve curriculum outcomes.

Enterprise education fosters skills and qualities that encourage children to develop and demonstrate intellectual curiosity, creativity, self-awareness, and initiative. Educators recognize that the development of an enterprising spirit occurs over time. Building a foundation at the primary level is essential for this development.

Enterprise Education nurtures a spirit of curiosity and innovation in children while it focuses on the development of their academic, personal management, and teamwork skills. At the primary level, enterprise education promotes cross-curricular learning while simultaneously allowing children to take responsibility for their own learning and encourages active participation in family, school, and community.

The program in enterprise education states that children are to take inventory of their strengths and talents, to be proactive and receptive to new ideas, to take responsibility for their mistakes and successes, and to persevere when tasks seem difficult. Enterprise education is not seen as a new curriculum area; rather it is seen as an articulation of what is already happening in many classrooms throughout Atlantic Canada. While there are currently many references to the term "enterprise", the following definition is used in the *We Can Do Anything!* Resource:

Enterprise education is designed to support children in:

- making things happen
- having ideas and using them
- viewing problems as opportunities
- generating imaginative solutions to problems
- working co-operatively to bring about change
- creating and maintaining a project
- turning negative into positive
- taking informed risks

Engaging learners in activities that encourage them to initiate and bring about change may be a subtle yet significant attitudinal shift for young people in many homes and classrooms. The program assumes that young people throughout Atlantic Canada need opportunities to nurture attitudes, skills, and knowledge that will help them identify opportunities in the context of their own environment. The following skills are promoted in *We Can Do Anything!* :

- academic skills -to communicate (e.g., listen, speak, read, and write)
-to think and learn for a lifetime
- personal management skills
-to have positive attitudes and behaviours (e.g., self-confidence, honesty, integrity, energy, persistence, initiative)
-to be responsible and adaptable
- teamwork skills
-to interact and work co-operatively

The Resource identifies four key components in enterprise education: active experiential learning, teamwork, ownership, and guided review and reflection. These act as guiding principles in the program:

- Active Experiential Learning
-children are active participants in the learning process which is dependent on their contribution
- Teamwork
- children share ideas and collaborate to complete group initiatives
- Ownership
- children take greater control and responsibility for their own learning
- Review and Reflection
-the children revisit their contributions to the activity to determine what has been accomplished, what has been learned about themselves, and what has been learned while doing the activity

4.22 Elementary Curriculum

The elementary enterprise education curriculum is similar to the primary level in that it is not a stand-alone area of student learning. The Department of Education expects activities to be infused into other areas of the curriculum, with some activities being taken from *Pathways to Enterprise: A Teacher Resource*⁸ . This publication has its genesis in a partnership project between the New Brunswick Department of Education and Project Entrepreneurship Project (PEP), Mount Allison University.

⁸ Henceforth referred to as Pathways to Enterprise.

Through the initiative of the Atlantic Provinces Education Foundation and the Atlantic Canada Opportunities Agency, under the Pan-Atlantic Entrepreneurship Development Programs, *Pathways to Enterprise* was expanded as a collaborative venture of the Departments of Education for New Brunswick, Newfoundland and Labrador, Nova Scotia, and Prince Edward Island.

Extracts taken from the Introduction to *Pathways to Enterprise* provide an overview of the Resource and illustrate the philosophy and approach it takes to enterprise education:

Pathways to Enterprise is designed to promote a deeper understanding of enterprise learning as an effective way to enhance the current curriculum, enrich learning, and perhaps most important, to encourage young people to become more aware of future career options.

Pathways to Enterprise is a resource for grades 3-8/ages 7-15. The resource promotes several fundamental concepts that are common to enterprise ventures. They all involve:

- initiating change
- making a difference
- taking a calculated risk

The following skills, which are considered the focus of all enterprise learning situations, are promoted:

- Communicating
- Working as a team
- Thinking creatively
- Thinking critically
- Problem-solving
- Negotiating
- Making decisions
- Taking informed risks
- Organizing/Managing
- Evaluating

The personal qualities identified as being key to the success of enterprise education are defined in *Pathways to Enterprise* as follows:

- **Confidence.**
To believe in yourself, to know your strengths and talents, to possess self-assurance, and to have confidence in your community
- **Initiative.**
To take charge, to be active rather than reactive, to initiate change rather than merely adapting to change, to be open-minded and receptive to new ideas, and to create opportunities
- **Responsibility.**
To take responsibility for all that you do - your successes and failures, your mistakes and your triumphs
- **Perseverance.**
To keep on trying, not to give up when the task seems difficult, to view mistakes as opportunities for learning, to be optimistic and determined in setting and pursuing goals, and to turn negative situations into positive ones

The fundamental belief underlying the *Pathways to Enterprise* resource is that:

All young people need enterprise education in order to have the foundation necessary for leading active, productive adult lives in the new knowledge-based economy. (Section 1.3, p.8)

Within the Program, there is the assumption that there are many contexts for promoting learning for enterprise. This resource book focuses on five: The Arts, Technology, Environmental projects, Community service, and Entrepreneurial ventures.

4.23 Intermediate Curriculum

The intermediate enterprise curriculum has a resource, *Connections: Learning Through Entrepreneurship Across the Curriculum/A Teaching Resource Grades 7-9⁹*, which contains activities that are to be integrated into other areas of study. It was developed through a partnership project between the Departments of Education of Newfoundland and Labrador, Nova Scotia, and Prince Edward Island under the auspices of the Atlantic Provinces Education Federation and the Atlantic Canada Opportunities Agency. Extracts taken from the Introduction to Connections provide an overview of what this Resource offers:

⁹ Henceforth referred to as Connections.

Connections has been developed as a supplementary classroom resource to provide grades seven, eight, and nine teachers with suggestions for learning experiences that encourage an enterprising and entrepreneurial spirit. The activities, which are presented in this resource, provide connections to student outcomes identified in various curriculum areas. These student-centred activities have been designed and validated by teachers in Atlantic Canada.

This resource fosters the development of academic, personal management, and teamwork skills in the classroom through a co-operative, collaborative, experiential, and reflective approach to learning. The infusion of enterprise/ entrepreneurship education into the curricula provides teachers and students with exciting and innovative paths to meet the challenges and demands of the 21st century.

The purpose of this resource is to provide grades seven, eight, and nine teachers with ideas to facilitate the incorporation of entrepreneurial thinking into the existing curriculum. *Connections* engages learners in a variety of cross-curricular activities which provide opportunities for students throughout Atlantic Canada to develop knowledge, skills, and attitudes both in core curriculum areas and in entrepreneurial education. The development of entrepreneurial knowledge, skills, and attitudes is an evolving process that the students begin at an early age. This progression will provide students with a greater understanding and appreciation of entrepreneurship in the context of their daily lives.

Connections promotes the following:

- **Knowledge:** content of any given curriculum
- **Skills:** communication, decision making, human relations, problem-solving, critical and creative thinking, and management
- **Attitudes:** self-confidence, responsibility, self-determination, risk-taking, and being receptive to change

At the intermediate level, students are introduced to both enterprise education and entrepreneurship education.

4.231 Enterprise Education

Connections describes what enterprise education should encompass at the intermediate level:

Enterprise education fosters students' growth as independent learners within a supportive learning community. It recognizes that Learning Outcomes are achieved through student ownership and responsibility. To nurture an enterprising atmosphere within the classroom, the following components must be recognized: student ownership, experiential learning, teamwork, review, and reflection. Teachers, recognizing the importance of these components, can create a climate which encourages student responsibility and ownership for identifying, planning, completing, and evaluating the Learning Goals, Tasks, and Outcomes. Through enterprise education, students continue the journey of becoming life-long learners.

Enterprise education is a significant component of the learning process. Increasingly people in the business community, community development, education, and government are recognizing the need for enterprise. The following are important reasons why young people need to be more enterprising:

- to become more independent and self-reliant, active, responsible citizens
- to be able to adapt to, initiate, and be more flexible in responding to change

Enterprise education encourages young people to attain the foundation necessary for leading active, productive adult lives in the new knowledge-based economy. (p.xii)

4.232 Entrepreneurship Education

Connections also provides a description of what entrepreneurship education is designed to be at the intermediate level:

Entrepreneurship involves the recognition of opportunities (needs, wants, and problems) and the use of resources to implement creative, innovative ideas that can respond to these opportunities through new, thoughtfully planned ventures. The launching of an entrepreneurial venture, whether for profit or not, requires knowledge of fundamental business components: marketing, operations, accounting, and management.

The term "venture" has been used throughout this Resource in the context of recognizing opportunities and the risks involved in actualizing them.

Students will be creating, designing, planning, and implementing "ventures" either in simulation or in real life situations. These ventures may be school or community related. While working in a secure, supportive school environment, students will have the opportunity to develop and implement venture plans and at the same time develop numeracy, communication, decision-making, and social skills.

The ventures suggested in *Connections* can take one of the following forms:

- establishing a volunteer, community, or service project
- establishing a business venture
- planning, promoting, and managing an event

- designing, creating, producing, advertizing and/or marketing a product or service

4.24 Senior High Economic/Enterprise Prescribed Provincial Curriculum

Economic/enterprise education is an area of study in the senior high curriculum. All students must attain a minimum of two credits in economic and/or enterprise education in order to graduate from senior high school. Credits may be acquired through provincial and/or local courses in the area of enterprise education. The following courses fall under the subject area of economic/enterprise education. The summary description of each course is taken from the *Program of Studies 2000-2001*. For a description of the economic/enterprise education curriculum, see Appendix F.

Business Enterprise 1100 - This course is an introduction to current business enterprise procedures, practices, and careers. It is intended to enhance personal development, special interests, and career goals. It includes topics such as entrepreneurs and the business world, role of small business in the economy, communications, finance marketing, and human resources and supports learning in business mathematics, economics, and enterprise education.

Consumer Studies 1202 - This course is an introduction to consumer affairs. Topics: needs versus wants, organizational features of Canadian business, effective consumer purchasing, management of personal resources, consumer protection, and corporate citizenship.

Canadian Economy 2103 - This course is an introductory study of the Canadian economy. Topics: forms of economic organization, business and government, the market place, money and banking, resources, production and growth, international trade, unemployment and employment, inflation and stabilization policies, income and consumption, current economic problems.

Global Economics 3103 - This economics course is intended for students who wish to pursue a further study of economics from the global perspective. Topics: The individual within the global economy, technology and the global market place, global competitiveness, international trade, trans-national corporations, monetary issues, and sustainable living.

Enterprise 3205 - Enterprise 3205 is a course designed mainly for students who wish to pursue an in-depth study of enterprise education by enabling them to formulate ideas, translate those ideas into action, and follow them through to a venture. The specific units of study include: an introduction to entrepreneurial studies, focus on self, communication and role of technology, identifying opportunities, developing a venture plan, and presenting, implementing, and evaluating the venture.

4.3 Externally Funded Provincial Curriculum Resources

Paul Mills, a vice-president of the Atlantic Canada Opportunities Agency, spoke at *North Atlantic Forum 2000*, held in Corner Brook, Newfoundland on September 25, 2000. He addressed the need for collaboration:

The Federal and Provincial Governments are involved in economic development for a good reason: the Constitution of Canada says economic development is a joint responsibility. This doesn't mean each side can't act independently, but common sense and fiscal responsibility dictates that we co-operate whenever possible. So collaboration here is a fact of life.

Mr. Mills explained that the intervention the Agency is most engaged in is "creating a good climate for business and an improved institutional and

community capacity." He explained that in his view, "Businesses and even industries may come and go, but investments in capacity building are never lost." Part of capacity building relates to the Federal Government's agenda of a connected society and e-government. High-speed access is part of the solution but the technical problems are only part of what Mr. Mills saw as needed. He stressed the human needs: "People need skills to participate in a connected society [...] So, in addition to bridging physical gaps, government has to help bridge social ones as well."

We found three externally funded projects, offered in partnership with the Department of Education, that are trying to bridge "the social gap" referred to by Mr. Mills. The first is a program available through the St. John's YMCA-YWCA Enterprise Centre. The second is the Regional Economic Development and Schools Project (REDAS) available through the Newfoundland and Labrador School Boards Association. The third, although smaller, is the Junior Achievement program.

4.31 St. John's YMCA-YWCA Enterprise Centre

To bridge a social gap and build community capacity the Atlantic Canada Opportunities Agency, together with Human Resources Development Canada, funds the St. John's YMCA-YWCA Enterprise Centre (commonly referred to as the "Y Enterprise Centre"). Since its opening in May 1987, this community based, non-profit business development agency holds as its primary purpose to help people create self-employment through small business development. The Centre assists individuals of any age in the development of a business plan. Qualified professional staff provides counselling on a one-on-one basis to help clients in determining the viability of a business.

The Centre currently delivers a number of programs. Of particular interest in this study is the association's involvement in the entrepreneurial education of youth as they progress from public schools to colleges or universities and into the work force. The Centre's stated long-term goal is "to work towards building future entrepreneurs for the Centre and all other Business Development Centres in Newfoundland and Labrador". Additional information may be found on their Website www.ymywca.nf.ca/.

The following programs, *Market Your Thoughts*, *Enterprise Olympics*, and *Youth Ventures*, are aimed directly at youth. As well, the Centre has published a workbook, *Creating Businesses: Business Planning*, for classroom use by Enterprise 3205 students.

4.311 Market Your Thoughts (MYT)

The Y Enterprise Centre, in partnership with the Department of Education, has developed *Market Your Thoughts* (MYT). MYT is a business essay competition specifically designed for intermediate students (grades 7 to 9) in Newfoundland and Labrador. The intent is to help expose Intermediate students to entrepreneurship courses and programs that they can pursue when they reach high school. A second purpose is to assist teachers of enterprise and entrepreneurship. The third purpose is to promote entrepreneurship as a real career choice for students.

The competition involves students identifying a business opportunity that they believe can work in the Province. They are then required to write a 600-1000-word essay describing their business idea. The criteria states that the essay should answer the following questions:

- What type of business are you planning and what products and/or services will you be offering? Explain in full.
- What consumer need does it fill?
- Why will your business idea be successful?
- What are its growth opportunities? Is your business idea unique in

- the marketplace? Explain how.
- What are the major risks associated with your business idea?

Volunteers from the business world and the public service judge the entries and emphasis is placed on creativity, marketability, and practicality. There are monetary prizes (\$100 and \$50), T-shirts, and sports caps for first and second place winners in each of the 11 school districts in the Province. Funding support comes from Atlantic Canada Opportunities Agency, Newfoundland and Labrador Credit Union, and the Department of Industry, Trade, and Rural Development.

4.312 Enterprise Olympics

The Enterprise Olympics are co-sponsored by the Y Enterprise Centre and the Department of Education. It is an annual provincial competition for high school students who are enrolled in Enterprise 3205. The Olympics are designed to be an integral part of the course. At the Olympics, students demonstrate their business ideas, products, and services to a panel of judges who are volunteers from the business world. The event is meant to simulate a "real life" trade show environment. The goals for the Enterprise Olympics are:

- to provide a venue to showcase all the regional winners provincially and celebrate their creativity and achievements
 - to offer students an opportunity to have a critical review of their business plans by a panel of judges who are experts in the field of entrepreneurship
- (Source: Online)

The Enterprise Olympics are made up of two competitions, #1: the Enterprise Showcase, and # 2: the Business Plan Competition. An Enterprise Conference is also included:

Competition #1: The Enterprise Showcase. Students in Enterprise 3205 are expected to develop a business (or venture) plan as part of course requirements. They are also expected "to carry out a mini venture for a period of time, keep a record of the activities and achievements, and evaluate the results based on the venture goals" (Course Description, Curriculum Strand VI). Also as part of course requirements, students are to produce exhibits to display their ventures. The Enterprise Showcase provides a public showcase to display and promote the student venture ideas developed in Enterprise 3205. Those who participate in the Enterprise Showcase are expected to compete first in their school district Enterprise Showcase competition. Winners from each district Showcase proceed to the Provincial Enterprise Showcase.

Competition # 2: The Business Plan Competition. The intent of the Business Plan Competition is to provide a meaningful integrative learning experience for students in Enterprise 3205. Curriculum Strand V states as a Specific Curriculum Outcome: "The learner will examine and develop a venture plan and determine its importance." The *Enterprise Olympics 2001 Teacher's Guide* encourages students "to 'pitch' their business concepts to a panel of judges from the local community" (p.12) and recommends specifically that students work with their local Regional Economic Development Board (REDB). After being judged by local judges and incorporating their feedback, students are expected to submit their business plans to the Y Enterprise Centre. A student from the School of Business, Memorial University, is then hired by the Y Enterprise Centre to prepare the student feedback and provides written feedback to all students submitting an entry. The top student entries, based on school district quotas, are invited to attend the Enterprise Olympics Conference. Students who are selected to attend are required to present their business plans to a "real life" review panel. The review panel

provides very specific positive and negative feedback to all students, with the hope that they will incorporate the information into their business plan. The review panel is composed of volunteers from the business community.

Enterprise Olympics Conference. The Enterprise Olympics are a simulation of a real life trade show. There are guest speakers, entrepreneurial activities, and an awards ceremony along with dinners and entertainment. Earlier Enterprise Olympics were held in larger centres, but the 2001 conference was held, for the first time, in a rural town, St. Anthony, on the northern tip of Newfoundland. The 2002 conference is scheduled for another rural town, this one on the south coast of Newfoundland. The co-ordinator of the Enterprise Olympics stated that the intention is to move future conferences all around the Province, to rural areas as well as to larger centres. Funding partners in the program are the Canada/ Newfoundland Comprehensive Economic Development Agreement (CEDA), the Atlantic Canada Opportunities Agency, the Department of Industry, Trade and Technology, and the Royal Bank Financial Group.

4.313 Youth Ventures

The Y Enterprise Centre administers the Canadian Youth Business Foundation loan program targeted at individuals between the ages of 18 and 29 who are looking to start a new business. The Youth Ventures Program supports young people aged 12-29 who are interested in exploring the world of small business by setting up a summertime business. Students who have completed Enterprise 3205, completed business plans, and who have competed in the Enterprise Olympics are encouraged to contact the Youth Ventures co-ordinators for assistance in beginning their business. Loans are available to assist young people in creating their own summer jobs through the Youth Ventures Program, or through Canadian Youth Business Foundation to provide venture capital to cover start-up costs of beginning a new business.

In the introduction to *Creating Businesses: Business Planning* (described in Section 4.314), two young people who were helped by funding through Youth Ventures are profiled as successful entrepreneurs. One turned her hobby into a creative mosaics business; the other set up a recording studio in his parents' basement. A young man interviewed in this study reported that he obtained a \$5,000 loan to run his own computer business during the summer. He made enough money to completely repay the loan and make a reasonable summer income. The Y Enterprise co-ordinator described how a young man has an established lawn care business thanks to the initial Youth Ventures funding, and tells how groups of young people in different parts of the Province have started dinner theatres to attract the tourists.

4.314 Creating Businesses - A Business Plan Resource Book

Teachers of Enterprise 3205 found that there were few resources available to teach high school students about the writing of business plans, and that the print materials available are written for the adult business community - not for classroom use. Teachers expressed the desire to have a user-friendly resource for high school students - a resource that would help students learn what the components of a good business plan were and assist teachers in the classroom. The seriousness of the lack of adequate resources was doubled by the fact that few teachers had any training or experience in entrepreneurship, business or economics, or experience in writing business plans. An internal survey completed by the provincial consultant for enterprise education teachers in the 1990s revealed only one respondent with a background in the area (an Economics Degree). The Y Enterprise Centre undertook to publish what they perceived to be a much needed resource book and to make it available to all teachers and students in Enterprise 3205.

In 1999, *Creating Businesses: Business Planning* was co-authored by Paul J. Dwyer (a former teacher of Enterprise 3205 and former provincial consultant for enterprise education) and Gary Ryan (the Director of the St. John's Y Enterprise Centre). The process they used required ongoing feedback from teachers and students of Enterprise 3205 on early draft editions. Dwyer, in an interview for the study, explained how he listened to students and teachers as he developed the resource book. The Y Enterprise Centre published 20,000 copies - enough to provide free copies to all students in Enterprise 3205 for five years. Copies were sent to the Department of Education for distribution to all schools offering the course, and the Resource book was listed as an authorized learning resource in the provincial Program of Studies 2000-2001. The project was funded through a partnership project between: the Atlantic Canada Opportunities Agency; the Department of Industry Trade and Technology through the Canada-Newfoundland Comprehensive Economic Development Agreement; the St. John's YMCA/YWCA Enterprise Centre; and the Newfoundland and Labrador Department of Education.

4.32 Regional Economic Development And Schools (REDAS) Program

The idea behind the Regional Economic Development And Schools (REDAS) Program is explained in the Program publication, *REDAS: A Guide to Proposal Writing (2000)*:

The concept underlying REDAS is that young people can be taught in school about the regional economy and about regional aspirations for growth and expansion. They can learn about work and entrepreneurial opportunities, and discover how to position themselves educationally to take advantage of this, remaining in their communities to help the communities to revitalize. (p.1)

REDAS is a pilot project by the Newfoundland and Labrador School Boards' Association (NLSBA) that is funded by the Atlantic Canada Opportunities Agency. The Program provides support for the development of learning modules to introduce practical economic development activities and/or materials to courses in the secondary school system (grades 7 - 12). In his announcement of the program on March 15, 1999, the then Minister of Veterans Affairs and Secretary of State for Atlantic Canada Opportunities Agency, Hon. Fred Mifflin said:

Through this innovative program, we are taking a more pro-active approach to make students aware of local resources, potential development opportunities, and possible career options that are available in their communities and regions. Economic forecasts show very encouraging signs for our Province's economy. As they consider their future prospects and careers, students should know about what's happening at their very own doorsteps. That's what this exciting partnership and program is all about. (Atlantic Canada Opportunities Agency News Release, March 15, 1999)

The Newfoundland and Labrador School Board's Association, in co-operation with Newfoundland and Labrador's Provincial Department of Education, works with all 11 school boards in the Province to deliver this Program. The Program requires teachers and students to work with their local Regional Economic Development Boards in order to learn about the priority areas for growth and development as identified by the Board's Strategic Economic Plan. To participate and obtain support, teachers have to work with Boards to develop regional-specific learning modules that can be integrated into the existing curriculum.

Criteria formulated for the writing of proposals for module development specify that the following information be provided:

- description of the module to be developed
- relationship of the module to regional growth sectors of the area

- relationship of the module to the school curriculum
 - relationship of the module to the school improvement plan
 - involvement of the local Regional Economic Development Board
 - involvement of the community and business partners
 - student evaluation plan
 - budget and budget justification
- (REDAS: A Guide to Proposal Writing, 2000, p.2)*

The learning modules, therefore, must be a collaborative effort involving schools, school districts, Regional Economic Development Boards, and the local industry. The Outcomes articulated for the module have to relate to the creation of awareness of growth sectors of the economy in the economic region in which the school is located. There must also be clearly delineated connections to already existing locally or provincially developed courses.

Information on this Program is sent to all school principals in schools offering the intermediate/secondary program. It is the teachers however, who are recognized as key to the success of the Program, and they (together with the Regional Economic Development Boards) are seen as the experts. Successful proposals can be funded up to \$8,000 each. All districts are now involved with the REDAS program and 31 projects have been approved for 2000-2001, with another 31 approved for 2001-2. Four examples listed below, all of which were developed in rural schools, illustrate the varied curriculum areas for which modules have been developed:

- *Sea Farming on Land: A Module in Aquaculture* (Computer Science 2101 and Environmental Science 3205)
- *Digital Video Editing with a Local Twist* (Multi-disciplinary, senior high school)
- *High Tech Fishery Career Options: The New Millennium* (Computer technology/English curriculum Grades 8/9, Levels I - III)
- *Edward Noel: Portrait of a Young Entrepreneur* (Enterprise 3205)

The last module listed above was developed at Carbonear Collegiate, a High School in the Avalon West School District. An interesting feature of this module is that the young entrepreneur portrayed in the module, Edward Noel, was just 15 years old when it was developed, and a level I (grade 10) student at the school. He had been operating a chicken farm since the age of 10. In the module, he explains why he started his own business and the rewards and problems he has experienced. There are student activities developed within the module, as well as information and activities concerning the Regional Economic Development Boards, with additional information about the local Board. Some of the activities focus on careers in Agrifoods, and there is also a section on how to get the financial support needed to start your own business.

The REDAS Program has an office in the Newfoundland and Labrador School Board's Association's headquarters. To facilitate sharing of learning modules among schools, the REDAS Project Director has learning modules available in a CD format.

4.33 Role of the Project Directors

Both the Y Enterprise Centre and the REDAS Program have strong project direction. The Centre has hired an Educational Consultant who has been active in the area of social studies and enterprise education at the provincial level, and as well, was a classroom teacher for Enterprise 3205 for eight years. He is also a textbook writer and instructional designer with high credibility in the Province. He is enthusiastic about the contribution that the programs from the Y Enterprise Centre can make and is passionate about making teachers aware of them. He visits school district offices, working with program specialists, and with the support of the district, he visits schools and talks to teachers, students, and principals.

The REDAS Program has a similar champion. The Project Director has a background in career counselling and is an educator with experience at the provincial and district level. She was one of the first educators in the Province to become involved with co-operative education. She worked with the Provincial Government on the Newfoundland and Labrador Strategic Social Plan, with a particular interest in the involvement of Economic Development Boards. She is a strong champion for the program and promotes it at all levels of the system.

4.34 Junior Achievement

In the 2000-2001 school year, five schools in Avalon West School District participated in Junior Achievement (JA), an international non-profit organization dedicated to educating and inspiring young people about business and economics. The JA experience is designed to help young people discover leadership and entrepreneurial and workforce readiness skills so they can achieve their highest potential and future successes as citizens in the global community.

Junior Achievement of Canada (JACAN) was formed in 1967. JACAN develops, markets, and licenses the JA brand of youth business and Economic Education programs in Canada. Through its network of 32 chartered offices, JA programs have grown to reach more than 1.2 million young Canadians in over 400 communities, and teach young people about business and economics through age appropriate activities that complement class curricula. JA's current program line-up includes programs at the elementary, intermediate and high school levels. Volunteers run the program. Annually more than 11,000 Canadians volunteer with JA, helping young people understand how business and economics really work.

One of the four Regional Economic Development Boards in the Avalon West School District, the Mariner Resource Opportunities Network Inc., officially sponsors Junior Achievement on the Bay de Verde Peninsula of Newfoundland. The project began three years ago and has been successful in having ten businesses commit financially to sponsoring JA in the designated schools on the peninsula. A total of seven grade 6 classes, representing approximately 170 students each year, receive the *Business Basics Program* by a trained business volunteer. *Business Basics* is a JA program which focuses on developing a positive attitude about business and economics, while strengthening elementary students' interpersonal and communication skills. The district program specialist responsible for co-ordinating the Program reported that parents, students, and teachers have positively received this Program, and the hope is that it will be expanded to all grade 6 classrooms in the school district. Other JA programs, available through the national organization at a more advanced level, are also seen as desirable and may be explored. He felt that Junior Achievement is an excellent introduction to enterprise education and that it is an integral part of that program.

A local JA Committee is responsible for the Program. They are responsible for recruiting business partners and they work closely with the JACAN Provincial office to co-ordinate the training of the business volunteers. Business sponsors contribute volunteers to go into the classroom to present the program, working with the classroom teacher. These volunteers receive a week of training from the provincial JA trainers and are expected to teach six periods in the classroom. They introduce the concept of business plans and ventures to the students and even have the students start a small business. In addition, the business sponsors contribute \$500 each to the Program and have the option of having a representative seat in the local Committee if they wish. Local sponsors include the community college, the Bank of Montreal, as well as local businesses.

Mariner Resource Opportunities Network Inc., in its Website, states that it is "cognizant of the need to foster social development initiatives, as well as promoting economic endeavours." The goal of the Network is to "help to

instill entrepreneurship as a viable choice in the future career choices of these students. Furthermore, the ultimate goal of this project is to have Junior Achievement be self-sufficient on this Peninsula through continued business sponsorship."

4.4 District Locally Developed Courses and Partnerships

School districts and/or individual schools in Newfoundland and Labrador are permitted to develop local courses and implement them, provided the guidelines for the development of local courses, as set by the Department of Education, are followed and the courses are approved by the Department. In the Avalon West School District, we discovered a senior high locally developed course, *Workplace Safety 3220* that was developed by the district. This course is presently being offered in each of the four schools visited for this report. In discussions with the Partnership Co-ordinator, we were told that the course is also offered in various schools throughout the local district as well as in schools throughout nine other provincial districts (the exception being the French school district, School District #11).

The Workplace Safety 3220 course was developed in partnership with the Newfoundland and Labrador Employer's Council, Department of Environment and Labour, Department of Education, Workplace Health and Safety Compensation Commission, Workplace Safety 3220 Steering Committee, and North Atlantic Refining Limited. It is a practical 2-credit course that provides a work place safety curriculum and ties education in with the transition to work. Students receive certification for various workplace safety programs that are dealt with in the course, for example, after successfully completing the component on First Aid Training; students will receive a Certificate of Certification. Certification in programs such as First Aid gives students an employability edge.

Within the Avalon West School District there are other work-related locally developed courses. One of the schools in the study reported that it had developed a local course entitled *Housing and Interior Design* which was offered only in that particular school while another course, *Food Services*, was being used in some of the other schools within the District.

4.5 Career/Co-operative Education

Schools in Newfoundland and Labrador also are providing, in varying degrees, career and co-operative education. All schools offer a prescribed curriculum as described below. However, there are significant challenges facing schools in the provisions of these courses, which will be discussed in this section.

4.51 The Prescribed Curriculum

Within the provincial curriculum, career/co-operative education is envisioned as contributing to the future economic development of Newfoundland and Labrador. This area of the curriculum is designed to provide students with the opportunity to explore career choices and gain an understanding of the work world. In this way, it is meant to facilitate the school-to-work transition. This curriculum does not have a stand-alone program for the primary and elementary levels but it is assumed that students receive awareness and understanding of careers and the work world from other curriculum areas, especially social studies. For example, themes such as "Occupations", "Life on the Farm", or "Fishing" are commonly used in primary and elementary grades. Visits by parents, grandparents, and other community members often draw attention to the occupations found in the students' communities. These types of activities contribute to early career education.

At the intermediate level, Career Exploration is prescribed as an area of study in grade 9. The *Program of Studies 2000-2001* gives a description of the program:

At the grade 9 level, the guidance module, Career Exploration, is designed around the three stages of Career Development: self-awareness, career exploration, and career and education planning. Students develop an understanding of self in relation to the world of work through the exploration of interests, abilities, aptitudes, needs, and values. This self-awareness assists students in developing educational plans.

The authorized Learning Resource for intermediate is *Take Our Kids to Work*. The activities in this textbook are meant to: provide an opportunity for grade 9 students to see different roles and responsibilities in the work place; develop closer dialogue with their parents or another caring adult; enhance understanding of individual jobs; and attempt to link the classroom with the workplace.

At the senior high level, the career/co-operative education area of study offers two courses: Career Explorations 1101 and Co-operative Education 1100. Descriptions of these courses as found in the *Program of Studies 2000-2001* are:

Career Exploration 1101 - This course is designed to provide students with the opportunity to explore the changes that are taking place in the world of work. Students learn how to interpret, assess, and reassess the constant changes in the labour market. They will have a better understanding of issues and trends that affect education, training, and employment opportunities. Students will have an opportunity to gain an understanding of themselves in relation to career choices while in the process of developing educational and career plans. This course will assist students to develop an understanding of, and respect for, work of all kinds while acquiring skills necessary to explore the vast range of educational and career opportunities.

Co-operative Education 1100 - This course is an introduction to co-operative education for students following either a subject-based or a career-exploratory program. It is designed to facilitate the students' adjustment to an unfamiliar learning environment. Co-operative Education 1100 requires that students gain experience prior to their work placement in the community. The additional hours of this course will consist of integration sessions aimed at integrating the students' experience at the work site with the pre-employment module. This course must be done concurrently with either Co-operative Education 1122, 2220, or 3220, which must be developed locally and include topics in two main areas:

Part I - Self-assessment, World of Work, Job Search Techniques, Training Site Orientation, Occupational Health and Safety, Unions and the Labour Movement, and Legislation in Newfoundland and Labrador.

Part II - Integration Sessions that provide students and teachers with an opportunity to reinforce skills and techniques learned at the work site, and where applicable, integrate specific subject objectives.

4.52 Co-curricular Activities in Career Education

Co-curricular career education activities are taking place in high school grades within each of the schools represented in the focus group. These activities are occurring outside the prescribed curriculum but are school sponsored and contribute to the prescribed curriculum. There are Career Days, where visitors representing various occupations visit the school and share information with students as well as Recruitment Visits from universities and colleges. In addition, one school sponsored an Art Day, which promoted the visual arts as a career. The highlight of the day was a

visit from internationally known artist Christopher Pratt, who invited students to his studio so they could see how an artist worked. Visiting artists were brought into the school to work with students through a provincial program, . In another school, the local Economic Development Board hosted a visit from the President of Memorial University and arranged for him to speak to students. In addition, some students participated in the provincially funded student summer employment program, *Youth Ventures*. Many students found the annual recruitment visit from the Canadian Armed Forces to be interesting. The private college in the area sponsored an e-business symposium for community leaders in the region and invited high schools to send two student representatives. These activities were seen as valuable, but supplementary. We were told that they are not sufficient to meet students' needs, and that a stronger program is needed.

4.53 Challenges in Career Education

A significant problem identified in this study surrounds the provision of career education to students in rural schools. In the focus group held as part of this study, teachers, administrators, and guidance counsellors agreed that there is a need for more and improved career education in the schools. Part of the urgency is created because of the changing way of life in the small fishing communities. Traditionally, children who grew up in Newfoundland and Labrador fishing communities were introduced to the world of work at an early age. They often played and worked around fishing premises, helping parents or relatives with fishing chores. Most children were familiar with boats, and learned the language and practices pertaining to the fishing industry long before they finished school. Many teenagers worked part-time at fish plants and in fishing boats.

With the closure of the inshore fishery in 1992, life changed. Students in grade 5 in 2000-2001 were infants at that time. An elementary teacher reported that his grade 5 students no longer know the traditional way of life that we take for granted. A guidance teacher confirmed this point of view. She arranged a school visit by a local fisherman to an elementary school class. In speaking to the students, he used the usual fishing terminology. To both her and the fisherman's surprise, the children could not understand much of the fishing terminology used. The guidance counsellor had to act as a translator. The teacher and the guidance counsellor made the point that if the fishery should ever return, there will be a need for training unparalleled in the history of this Province.

Even, therefore, for entry into what has always been considered the primary industry of the Province (fishing), students need career guidance. They no longer know the potential it can offer them. Nor do they know how best to prepare for work in the fishery of today. From an educational perspective, there has been one positive impact from this - the teachers feel that there is increased interest in academic based studies in high school. Students no longer leave school early to engage in the fishery or work in the fish plant (a problem at an earlier time), nor do they dismiss fishing as a low paid, low status occupation, requiring little formal training or education. They are aware that some people in the community are doing very well in the fishery, making salaries in excess of \$100,000 annually. They see the new fishing boats and some are intrigued by the state-of-the-art navigational equipment. A teacher reported that a high school student interested in being the captain of such a fishing vessel asked, "Do I need Physics?" Years ago that question would seldom, if ever, have been raised.

Although most high schools have guidance counsellors¹⁰, we found that there is a need for more career education. In fact, schools reported that career education was either minimal or non-existent. Schools that do have guidance counsellors, find that the majority of the counsellor's time is spent on personal counselling and testing. Even though career education is considered important, the demand on guidance counsellors means that urgent cases involving student personal crises always consumes time. Current efforts at career education were described by the focus group in this

study as "too little, too late." It was felt that career education needed to start early, in elementary and primary grades. Teachers argued that students, from an early age, need to become aware of local opportunities and ways to make a living in their rural area. One teacher explained that students needed to explore what success in life really means: "Is success a \$75,000 salary? You can be successful with much less than \$75,000 if you live here."

¹⁰ The need for guidance counsellors is recognized and there is a Provincial allocation of 1 per 500 students. The reason why some schools lack guidance counsellors is because they are not available.

What is needed, we were told, is a structured program in elementary and secondary schools that will help students explore non-traditional occupations and local jobs or work opportunities, as well as other occupations. Such a program needs to ensure a tight link between the local business community and the schools. This type of program would avoid what a teacher described as the current situation, in which "Kids graduate [from high school] and go to St. John's and knock around for a few years [at either the University or a college]." He has seen these young adults return home, still not sufficiently trained to engage in any local employment opportunities, still not knowing what to do, and with thousands of dollars accumulated in student loans. He concluded:

When students make decisions, they need more information than they have currently. It is criminal for a young person to graduate from high school and have no knowledge of where to go. It's a problem when people leave [high school] with ill-informed views. There are more career opportunities than becoming nurses and teachers.

A member of the local Regional Economic Development Board commented:

The future in rural Newfoundland and Labrador is not that predictable. If there is to be future, the education system must help people appreciate the value of a life in rural areas.

One school principal saw the situation as needing a major shift in the attitudes held by many people in the Province:

There is doom and gloom about the fishery. Yet, the money from the industry is greater than before. There's more money but fewer people [engaged in the fishery]. People still see it in the old ways. Very little is done to make young people aware of how to make a future in the fishery besides working in the fish plant or on the fishing boat.

4.54 Suggestions for Career Education

A teacher commented: "There is nothing there to help kids see the jobs that could keep them in the local area. There is no communication about the Newfoundland job market." He wanted to see an increased emphasis on entrepreneurship, on what work is available in the Province, particularly the local area. His school served the communities close to the St. Mary's Seabird Ecological Reserve, described by Adventure Tourism advertisements as "one of the most spectacular and most accessible seabird colonies in North America," home to an estimated 200,000 seabirds. The Bird Sanctuary receives an estimated 20,000 visitors annually. On May 24, 2001, it was announced that it had been voted the best Natural Outdoor Site (Area less than 100 square km) in the Attractions Canada Award Program. Despite the recognition that this Sanctuary is receiving, there is a lack of information available for young people who may wish to pursue occupations there. In fact, there is a lack of local qualified people to fill positions advertised by the Sanctuary. The school would like to see a more proactive program developed to help students understand how they might prepare themselves to live and work using the potential opportunities offered by the resources in the area. The teacher concluded, "Positive, pro-

active approaches would be so helpful."

A college instructor agreed on the need, and asked, "How can we create confidence in the future here so that people will take risks?" The local college has developed a 2-year ICT course, but some students question whether they will find a job in the end. He wanted to explore ways to instil confidence and reduce the risk. A solution suggested was to strengthen the connection between the local business community and schools and to begin to build confidence in the potential of the local area earlier in students' lives. Local Regional Economic Development Boards working more closely with the schools was considered a solid foundation upon which to begin.

A number of positive recommendations and suggestions came from the group. These are listed below:

- **More Career Practitioners in Schools.** The members of the focus group wanted to see more career education in schools. They questioned the exclusive use of university trained guidance counsellors. Why could there not be college trained career practitioners who come from different backgrounds, including the trades? The practitioners they had in mind were not fully trained guidance counsellors who had to deal with personal counselling issues, testing, and other demands. Instead, they saw the need for career education practitioners, people trained in career education that would speak from various perspectives, including the trades.
- **Career Education through TeleLearning.** The focus group recommended that the Department of Education and the school district might consider how TeleLearning could help in career education. Could there not be a localized program that explored career opportunities in the area?
- **Support from Regional Economic Development Boards.** The need for closer connections between schools and Regional Economic Development Boards was emphasized. This support is needed for successful creation of cross-curricular modules in career education that reflect the potential of the region. Funding proposals for projects in career education would also need support from Regional Economic Development Boards. The REDAS projects require such partnerships and were used as models of what could be done in career education.
- **Access to Regional Economic Profiles in Schools.** If schools are to provide meaningful career education, they need access to information concerning the regional economy. Regional profiles being made available to the local Regional Economic Development Boards should be shared with schools.
- **Recognition of the Value of Career Education.** The group felt that low priority has been given to career education within the education system. They recommended that the Department of Education place more priority on career education within the provincial curriculum framework.
- **More Co-operative Education Programs.** The Avalon West School Board, with seed money from Human Resources Development Canada, operated co-operative education programs in some of their high schools. Unfortunately, when the seed money was spent, the programs were discontinued. The group recommended that the district and Province support the re-introduction of these programs.
- **Closer Links Between Parents and Schools.** Of particular concern was the lack of awareness among parents of the different routes to graduation. Some parents, a number of whom were not high school graduates themselves, were unaware that a school-leaving certificate which meets minimal graduation requirements is not the same as

matriculation, and will not fulfil admission requirements to most post-secondary institutions. The group recommended a closer relationship and stronger communication between parents and schools, particularly as it relates to future post-secondary training.

Among the focus group, there was general optimism about what could be done to improve career education. The will to co-operate - Regional Economic Development Boards, school district personnel, and schools - was apparent. There was also the realization in the group that some practices have been effective and that past successes can be capitalized upon. A school principal commented: "The REDAS projects are very positive. The modules worked - it is a step in the right direction. The co-operative education program offered in the past was beneficial - it should be re-visited. Combine them both with career education." Such a move would mean partnerships and collaboration between leaders in community economic development and education - a desirable goal.

4.6 What is Actually Happening in the Schools

What is occurring in the schools in terms of contribution to career choices and/or to the economic development of the Province is varied. Using the Avalon West School District as an example, we found that each of the four schools visited offered courses from the provincially prescribed senior high curriculum as well as the local course *Workplace Safety 3220*. One of the schools offered locally developed courses. According to the records kept at school district office, in the 2000-2001 school year student enrolments in senior high school prescribed courses were:

- Enterprise Education 3205 - 533 students
- Business Education 1100 - 141 students
- Affaires et entrepreneuriat 1130 (French version of Business 1100) - 33 students
- Consumer Studies 1202 - 189 students
- Career Exploration 1101 - 213 students
- Co-operative Education - 6 students

The types of student activities and projects that stem from these courses vary. Some (especially in Enterprise Education 3205) become long term projects and summer businesses for the students, while others are only developed to fill the requirements of the courses. One grade 7 student wrote his own business proposal and received the start-up money to begin a lawn care business. The general impression noted by one graduate seemed representative of others - he saw Enterprise Education 3205 as "pretty good" and it had led to a summer job, but Career Exploration 1101 was "a joke", a lot of activities about creating a resume and interview skills, but no real contribution in helping students find out about ways to enter the work force and routes available locally for training.

Co-operative education courses, in which students actually enter the workplace and have work experience, are not common in Newfoundland and Labrador's schools. In the focus group meeting held as part of this study, there was agreement that this type of programming is desirable but not generally available. In the Avalon West School District, there were only 6 students involved in the 2000-2001 school year. One principal referred to co-operative education programs available in the mid-90s but no longer funded and now discontinued. Educators present at the focus group meeting would very much like to see such programs re-introduced.

In the Province, co-op education began in 1992 with seed money from the Federal Government. The plan was that the program would be self-sustaining after three years. The intent was that the Department of Education and the school boards would gradually assume responsibility. This had not happened. There are, however, some co-operative education programs offered. In 1997-98, it is estimated that the Provincial Department of Education contributed \$3.5 million to co-operative education programs

(this included teachers' salaries). Statistics from the Department of Education reveal the numbers registered:

Statistics 2000 - 2001

Provincial co-operative education course	1
Number of schools offering co-operative education	28
Number of student registrants	2,153
Total number of senior high school students:	
Grade 10	8,035
Grade 11	7,932
Grade 12	7,523
Total	23,490

From these statistics, it is clear that only about 9% of secondary students are involved. As the description of co-operative education 1100 reveals, this course is an introduction to co-operative education for students following either a subject-based or a career-exploratory program. It requires that students gain experience prior to their work placement in the community. The additional hours of this course are to consist of integration sessions aimed at integrating the students' experience at the work site with the pre-employment module. This course is completed concurrently with one of three co-operative education courses that must be developed locally.

We were told that most students who are registered in this course are at-risk students or students with special needs, who required such a course in order to meet graduation requirements. The focus for these students is work experience. Those in the focus group meeting saw the need for a co-operative education course which would allow students who are more academically inclined to undertake a discipline based co-operative education course (i.e., law, medicine). They saw the need to include all occupations - those requiring university training as well as work experiences for those less capable of academic work.

We investigated whether co-op programs are available in rural schools across the Province. Are they only offered in the larger schools, we wondered? Statistics from the Department of Education revealed that very few rural schools offer locally developed co-operative education courses. The vast majority of courses are offered in the larger districts, and in their larger schools. The bulk of courses are offered in the St. John's/ Mt. Pearl area. District #2 Northern Newfoundland and Southern Labrador, the most rural school district with 100% of its schools classified as rural by the Department of Education, offers no locally developed co-operative education courses at all. The reason for this is partly due to school size. Small schools simply do not have the teachers to offer many elective courses.

4.7 Perceptions of Success

One of the questions of concern in this study was that of the courses offered in the area of economic/enterprise education. Are they successful? Moreover, if so, to what degree? Upon inquiry, we were not informed that there was a 100% student pass rate in all the courses available in this area. Nor were we informed that these subjects had higher student pass rates than in any of the other courses offered. Instead, we received answers in which success was perceived in other ways.

The provincial consultant for social studies/enterprise education measured success with these responses:

Since the introduction of enterprise education, there has been a big turnaround. The greater community outcome is that we are breaking

the traditional cultural perception of entrepreneurs. They are no longer social pariahs, instead they are now equal partners assisting us in and passing on their enterprising skills and knowledge to school students.

There has been quite a visible difference in the projects and plans of students over the years. There is a difference in the quality, content, creativity, and the confidence of students. This is seen with the Enterprise Showcase that complements the Enterprise Education 3205 course. The projects are more sophisticated and the plans are more solid. Many of these projects become the students' summer work. They become very much a part of the students and not looked upon as something that they had to do in school.

When principals were asked about the success of the courses offered, of the activities that students were involved in, and if these had any impact on student career choices or on the economic development of the area, the responses leaned towards the positive. All principles reported that the courses were successful. Some of the responses expressed the satisfaction felt towards student achievement in this area of study. They were pleased with the types of projects that students did and that some students had found summer employment and elated that others had pursued careers based on experiences received at school. A selection of responses illustrates the varied perceptions of success:

This program has been very beneficial for students, school, and community. Some who developed good business skills had their own businesses while in school and continued in business.

The courses have been successful. The student enrolment has increased over the years in these courses. The students have developed business plans, attended seminars, operated businesses, worked with Regional Economic Development Boards, and found work placements.

The courses are successful. The students have done activities to promote Cape St. Mary's (the local region), they have given tours of the region, they have made and sold crafts that are related to the region, and some students have had their own little businesses. One student here in the school right now has her own business. She has a decorating business. She decorates for weddings and other events. There are other businesses that have come from Design Technology.

We have done some very neat projects here. Students have used the computerized sewing machines to do embroidery, and they have made scented candles, their products have been sold. Another group started a boat rental business. That was very successful. They later sold it but it is still in operation. One of our students who did one of our local courses in design has gone to international status. She liked the program and after graduating from here she went to Ryerson and did a program. She has designed clothes for famous singing stars and now she is a buyer for some company in Texas. She is doing very well. However, she did not come back.

Statements like "However she did not come back" were the downside to the success stories. We were told that despite all the efforts exerted at school and by other interest groups to entice students to stay in the rural areas, the young people are not staying. Some students graduate from school and leave to attend post-secondary institutions. These are the focused students who know what they want. They do very well and very few of these students return home except for visits. Others leave and go immediately into the work force. Most of these make their homes elsewhere, where jobs requiring little post-secondary training are to be found, in centres such as Fort McMurray, Alberta. Then there is the group who leave home and try different programs (at university or college) for a year or two. Many of these return, but we

were told that they contribute very little to the economic growth of the region. These are students who need the most help.

At the heart of the problem with this latter group is a lack of awareness about the world of work and how they can enter it. The schools we studied are not happy with current efforts in career education for those students. They see a need to bring the world of work closer to the lives of all secondary students, but especially to those who drift aimlessly after high school graduation. The message that those at the focus group discussion sent loudly and clearly is that schools must find a way to give all students hope that they have something to contribute and a means of making a living. To do so, policymakers and funding agencies at all levels need to support the school in developing better programs in career development.

Many provincial leaders in education, government offices, and community groups, are struggling with how best to link community economic development and schools. The Strategic Social Plan (SSP) of the Newfoundland and Labrador calls for an integrated approach and the Provincial Government has formed SSP Committees across the Province. Each Committee brings together the senior administrators from the school boards, health boards, Regional Economic Development Boards, and other community groups. This appears to be a step in the right direction. What is needed in addition to this is a way to bring together the local groups - the school principals, the local Regional Economic Development Board's executive officers, and the other local community leaders. If any group can come up with local solutions that may help youth make healthier transitions from schooling to work, it will be such a group.



CHAPTER FIVE

TEACHER EDUCATION (PRE-SERVICE AND CONTINUING EDUCATION)

As shown in Chapters Three and Four, in the provincial curriculum of Newfoundland and Labrador, there has been an increased emphasis on Information and Communications Technologies and economic/enterprise education. There is an assumption by the provincial curriculum developers that students require new courses in these areas if they are to be prepared for the New Economy. This has implications for the initial training and continuing education of teachers. The first part of this Chapter begins with a discussion of the initial preparation of teachers - the pre-service education offered to prospective teachers by the Faculty of Education, Memorial University of Newfoundland. It describes the programs available so that the preparation of teachers to deal with ICT and economic/enterprise education can be placed in context and discussed. It also describes a program of particular interest in this study, the newly developed Diploma in TeleLearning and Rural Education. The second half of the Chapter is an examination of opportunities teachers have for continuing education that will help them make the link between ICT, community or regional economic development, and education, particularly those in rural areas. Continuing education opportunities for teachers are provided by a number of agencies. This report does not attempt to provide a comprehensive review of all professional development initiatives and issues. The discussion is restricted to the role played by the Faculty of Education and the major projects in which the Faculty is involved as a partner as it relates to the focus on ICT, economic/enterprise education, and education in small rural schools. Other partners include the School of Continuing Education working with both graduate and undergraduate studies in the Faculty of Education; school districts (including schools); and the Newfoundland and Labrador Teachers' Association.

An obvious omission is a discussion of the role of the Department of Education. The Department does have a responsibility to ensure in-

serving of all new courses, and works with other agencies (particularly through the school district office and the assistant directors of programs) to provide teachers with professional development opportunities. References to the Department of Education in this Chapter are interwoven in the discussions as appropriate.

5.1 Pre-service Education - Faculty of Education, Memorial University

Every person wishing to be a certified teacher in the Province of Newfoundland and Labrador must hold a Degree in education (or its equivalent) from some recognized institute of higher learning. That Degree will be specialized to the point of it being in a certain area of education, for example, primary, secondary, or special education. There is not an expectation that the initial teacher preparation program will specifically train teachers for rural schools - the expectation is for a generalist program that would be the preparation for entry into any school, urban or rural. Memorial University of Newfoundland (MUN) is the only university within the Province, and the majority of teachers receive their training at MUN's Faculty of Education. The Education Degrees granted by MUN introduce prospective teachers to the field of education and to general teaching and learning methodologies and strategies appropriate to the grade levels they will teach.

5.11 Mandate and Mission

In the Province of Newfoundland and Labrador, the Faculty of Education holds the responsibility for training teachers. The Faculty's Mission statement printed in the *University Calendar 2001-2002* clearly identified this role:

The Faculty of Education of Memorial University of Newfoundland, under the terms of MEMORIAL UNIVERSITY ACT, accepts as its primary responsibility the professional preparation of those who will give leadership in education. The responsibility includes the professional preparation of teachers, administrators and specialists who will work in elementary, and intermediate, and secondary, and post-secondary institutions. The work of the Faculty incorporates undergraduate and graduate studies and continuing education. The Mandate includes specialized research for the improvement of pedagogical practice and broadly based research for the advancement of knowledge. The Faculty initiates and responds to change through a wide range of programmes and a variety of field services. It seeks to prepare educators who will have a reasoned philosophy of education, an appreciation of what knowledge is of most worth, a genuine love of learning, and the ability to think critically. It strives to prepare educators who have an understanding of the past, a plan for the present, and a vision for the future. (p.274)

To fulfil this Mission, the Faculty offers a number of Degree and Diploma Programs. These are reviewed and revised on an ongoing basis.

5.12 Degree Programs

The Faculty offers nine undergraduate Degrees, each intended for different levels of the kindergarten to grade 12 (level III) system (referred to as the K-12 system) or for specific learners (i.e., Native, and special education). Two programs are designed for the preparation of post-secondary teachers. Each of the seven programs for the K-12 system will be described below, with observations pertaining to the topics of interest in this report:

- Bachelor of Education (Primary/Elementary)
- Bachelor of Education (Intermediate/Secondary)
- Bachelor of Education (Intermediate/Secondary) Conjoint with the Diploma in Technology Education
- Bachelor of Music Conjoint with Bachelor of Music Education

In the last semester of the program, semester six, students are required to take three courses which are designed to provide reflection on the role of the school in society: Sociological Perspectives on Teaching and Learning, Philosophy of Teaching and Learning, and Introduction to Educational Administration. The course descriptions in the *Calendar* are general enough that the courses allow for discussions pertaining to technology education, use of ICT in schools, economic development, and enterprise education. Modules that deal with the Province's Strategic Social Plan and how Regional Economic Development Boards and schools can work together can be infused in such courses. However, decisions to include such topics depend on the individual instructors of the courses. Unless they are specified within the course descriptions in the *Calendar*, there are no guarantees that these topics will be addressed.

5.122 Bachelor of Education (Intermediate/Secondary)

The *Calendar 2001-2002* provides a description of the intermediate/secondary program:

The Bachelor of Education (intermediate/secondary) is a second-degree programme designed to prepare intermediate and secondary school teachers. All students attend full-time and should graduate in one school year. The programme is designed to provide students with an early field experience, a sequenced set of courses prior to a fourteen week internship, and a range of courses after the internship to allow students to build on strengths and remedy weaknesses which may have become apparent during the internship. (p.279)

To be admitted to the program, students must have already completed a Bachelor's Degree from a recognized university with a minimum of 36 credit hours in one academic subject and a minimum of 24 credit hours in a second subject listed as academic disciplines in the *Calendar*, Clause 3 (p.280). Whereas the primary/elementary program is a generalist Degree that assumes classroom teachers teach most if not all subjects, the intermediate/secondary program is a specialist Degree that assumes teachers are specialists in certain subject areas. These two academic subject areas required in the first Degree are two teachable areas or areas of teaching specialization and they meet provincial teacher certification regulations from the Department of Education. The academic disciplines listed are:

Biochemistry	History
Biology	Linguistics
Canadian Studies	Mathematics (Pure and Applied, Statistics)
Chemistry	Newfoundland Studies
Computer Science	Physical Education
Earth Sciences	Physics
Economics	Political Science
English	Religious Studies
Folklore	Theatre Arts
French	Visual Arts
Geography	

It should be noted that the list of Academic Areas does not include business or commerce. Although courses in economic/enterprise education have been added to the school curriculum, particularly in intermediate and secondary grades, there are no provisions for students with Degrees in business administration or commerce to meet admission requirements. Courses such as Business 1600 Introduction to Entrepreneurship, Business 1201 Principles of Marketing, or Business 5600 New Venture Creation are not considered even though they cover topics in the economics/enterprise curriculum for those in intermediate/secondary study. Students from these

programs can meet admission requirements only if they have sufficient courses in Academic Areas on the list (such as economics).

The only concession to small rural schools in the intermediate/secondary program is the requirement that all students have two (rather than one) teachable areas. This requirement is a direct result of research acquired during program revision that showed intermediate and secondary teachers in small high schools have to teach in more than one area.

One question requiring clarification is: What computer background is needed by intermediate and secondary teachers? The current list of Academic Areas identifies computer science. Few computer science graduates apply to the Education Faculty (there are four in the 2001-2002 class). Many intermediate and secondary schools do not look for computer science graduates as they find them too theoretical. These schools prefer graduates in Information Technology (IT) who are more comfortable with applications. However, IT is not recognized as an Academic Area for admission to the Faculty. Neither is it a teachable area for provincial teacher certification. The Faculty's new conjoint program - Bachelor of Education (intermediate/secondary) conjoint with the Diploma in Technology Education - is designed to provide the second academic area (technology education) and is taught within the Faculty of Education. This program is described below.

The intermediate/secondary program does not require as many professional (education) courses as the primary/elementary level (51 credit hours as compared with 75) partially because the training is that of a specialist rather than a generalist. The methods courses are chosen to match the academic disciplines under which the student has been admitted. For example, those students whose discipline is English are required to take a methodology course in the teaching of English. Some academic disciplines are grouped together. For example, those students whose academic discipline is Canadian studies, economics, geography, history, Newfoundland studies, or political science are required to do a methodology course in the teaching of social studies.

It is not likely that any course would introduce students to regional or community economic development or to Regional Economic Development Boards. It is doubtful if they would be introduced to the Province's Strategic Social Plan. As in the primary/elementary program, there is a course that covers the general structure of education, *Teaching and the Contemporary Classroom*, and these topics could be included in this course. However, as is the case in all university courses, unless specified in the course description as published in the *Calendar*, these decisions are left to the discretion of the instructor.

All students must complete a full semester internship during their second semester. As in the primary/elementary program, students choose the district in which they wish to complete their internship and the majority of students choose urban areas. There is no attempt by the Faculty to influence the choice. This will be discussed in greater detail in Section 5.16.

5.123 Bachelor of Education (Intermediate/Secondary) conjoint with the Diploma in Technology Education

The *Calendar 2001-2002* provides a description of this conjoint program:

The Bachelor of Education (intermediate/secondary) conjoint with the Diploma in Technology Education is a programme designed to prepare intermediate/ secondary school and technology education teachers. Technology education is a specialized subject area within the high school curriculum. Students in the programme will complete a number of laboratory courses that address the development of basic skills and competencies in a variety of technological areas and how to apply them through design and problem solving processes in

a classroom/laboratory setting. All students attend full-time and should graduate in four semesters. This conjoint programme is designed to provide students with an early field experience, a sequenced set of courses prior to the fourteen week internship and a range of courses after the internship to allow students to build on strengths and remedy weaknesses which may have become apparent during the internship. (p.281)

This is a new program - the first class of 17 students started in May 2001. Students meet the admission requirements as specified for the Bachelor of Education (intermediate/ secondary) but instead of two teachable areas, only one is required (36 credit hours). Their second teachable area is technology education. The students on this conjoint program will have an extra semester at the beginning of their studies in which they complete five courses in technology education. Since these courses are taught in the first semester, students are able to come from all teachable areas into this program. The Technology Education Diploma courses are described in section 5.131.

5.124 Bachelor of Music Conjoint with Bachelor of Music Education/Bachelor of Music Education as a Second Degree

The Faculty of Education has two programs for the preparation of music teachers planning a career in the K-12 system. The programs are offered with the School of Music, and the teaching faculty are cross-appointed with the Faculty of Education and the School of Music. To be admitted to the Bachelor of Music Education as a second Degree, students must already have been awarded the Bachelor's Degree in Music from a recognized university. Courses in music education are designed for urban and rural schools and include: pre-school, primary, elementary, and secondary school methods; orchestra methods; voice and choral methods; and band methods. All students must complete a full semester internship. In the period 1992-2001, all internships took place in urban settings.

5.125 Bachelor of Education (Native and Northern)

This is a teacher education program designed for Native students in Labrador who intend to pursue a teaching career in northern communities in Labrador. The program is designed to be of particular interest to students who want to continue their education after completion of the Diploma in Native and Northern Education (described in Section 5.132). Students may be admitted after completion of a minimum of 15 credit hours with an average of at least 55%.

Program requirements are adjusted to accommodate the needs of Native Labrador students, particularly pertaining to language and culture. For example, in the primary/elementary route, academic credits include Aboriginal Studies and the education component provides for the teaching of Inuktitut or Innu-aimun. Similar adjustments are made for students on the secondary education route. All candidates complete a one semester internship unless they have completed the Diploma in Native and Northern Education and have at least five years experience as a teacher or teaching assistant. These internships normally take place in rural schools located in Northern Labrador. This program is closely associated with the Diploma program. For additional information, please read Section 5.132.

5.126 Bachelor of Special Education

Students who wish to qualify as teachers of special education enrol in this program. To be admitted, they must already hold a Degree in primary or elementary education from a recognized university, have completed a course on the education of exceptional children, have completed a professional internship in education, or have equivalent teaching experience. Teachers who have a Degree in intermediate or secondary education have to complete a course in either Reading Methods or

5.13 Diploma Programs

The Faculty of Education currently offers five Diplomas. Two are for preparation of post-secondary teachers and will not be discussed in this report. The remaining three are:

- Diploma in Technology Education
- Diploma in Native and Northern Education / T.E.P.L.
- Diploma in TeleLearning and Rural School Education

The first two programs will be discussed in this section. However, the Diploma in TeleLearning and Rural School Education is of crucial importance in this report and will be discussed in Section 5.15.

5.131 Diploma in Technology Education

The Diploma in Technology Education is designed to be completed after the awarding of the first Bachelor's Degree in Education and to be delivered over three consecutive summer sessions. Recently it has been incorporated into The Bachelor of Education (intermediate/secondary) Conjoint with the Diploma in Technology Education program. The core of the Diploma (21 credit hours) is composed of courses in technology education technical skills. These courses include: Introductory Communications and Power Technology; Student Teaching in Technology Education; Intermediate Design and Materials Processing Technology; Intermediate Communications and Power Technology; Integrated Materials and Production Processes; Advanced Communications Systems; and Technology Education, Specialized. The courses are offered in a state-of-the-art technology education laboratory. The purpose of the Diploma is to prepare teachers to teach the technology education program in the K-12 system. Its future outside the conjoint program is uncertain, and will be examined as part of the Faculty of Education's self-study scheduled to take place in the 2001-2002 academic year.

5.132 Diploma in Native and Northern Education / T.E.P.L.

The Faculty of Education offers a Teacher Education Programme in Labrador (T.E.P.L.) with two options: Classroom Teacher or Core Language Teacher. Candidates for admission to the program must normally be a speaker of either Innu-aimun or Innuktitut.

The selection of the students is done by a T.E.P.L. Management Committee. Members include:

- A representative from Memorial University
- A representative from the Labrador Inuit Association
- A representative from the Sheshatshiu Band Council
- A representative from the Mushua Band Council
- A representative from the Labrador School Board (School District #1)

The T.E.P.L. is restricted to Native students who reside either on the North Coast of Labrador or the Upper Lake Melville area. Courses are offered, on a rotating basis, from one Labrador community to another in this area. The program selects a cohort group of students who enrol at the same time and graduate together in approximately three years. Courses are also designed using a modular format. Because courses are delivered in the modular format and in different communities, students are required to travel to other communities to attend courses.

All those registered in the T.E.P.L. Diploma must complete a common 30 credit hour core, regardless of optional routes chosen. In this core are the following courses:

- The Teaching of Inuttut or Innu-aimun
- Recognizing and Protecting Children's Needs
- Supervised Practice Teaching in Native Schools I and II
- Native Literature
- The Teaching of Inuttut or Innu-aimun
- Writing (English)
- Reading and Writing in InnutTut or Innu-aimun
- Issues in Oral Inuttut
- Introduction to Innu-aimun

Teachers who choose Option A - Classroom Teacher, complete 30 hours more of methodology courses in various subject areas. Those who choose Option B - Core Language Teacher, complete 30 credit hours from the following list:

- The Teaching of History and Culture of Labrador Innu and Inuit
- The Teaching of Aboriginal Issues
- Aboriginal Drama
- Aboriginal Music and Art
- Cultural Camp
- Oral Communications
- Teaching Strategies in Native and Northern Schools
- The Teaching of Inuttut OR Innu-aimun
- Curriculum and Instruction in Native and Northern Schools I
- Introduction to Inuttut OR Innu-aimun II
- Professional seminars on topics such as Classroom Management, Organizational Skills, Healing, Computer Training, and Resource Development

The future of this program rests on the wishes of the funding agencies: the Labrador Inuit Association, the Sheshatshiu Band Council, and the Mushua Band Council. Although it is administered through the main MUN campus (with a Labrador office as well) it has no on-campus presence, since all courses are taught in Labrador. It appears to be a model of a program responding to the needs of small rural schools (in this case, Native and northern schools) but has been criticized as not meeting needs well enough. It too will be studied as part of the Faculty of Education's self-study in 2001-2002.

5.14 Centre for TeleLearning and Rural Education

As mentioned previously, there are no initial education programs to train teachers specifically to teach in rural schools, with the exception of the program for Native teachers in Labrador. There have been, however, a considerable number of recommendations made from various studies conducted in the Province on teaching in small rural schools. From these recommendations, two initiatives have been implemented within the Faculty that focus on teaching and learning, and small rural schools. The first of these initiatives was the establishment of the Centre for TeleLearning and Rural Education in the Faculty of Education in January 1997. The second was the creation of a Diploma in TeleLearning and Rural School Teaching.

On February 25, 1997, Dr. Ken Stevens was appointed as professor in the Faculty of Education and the Chair of TeleLearning and Rural Education. This Chair was a partnership initiative between Memorial University, the Atlantic Canada Opportunities Agency, the Department of Education through the Canada/Newfoundland COOPERATION Agreement on Human Resource Development, and the Information Highway Applications Branch of Industry Canada. Dr. Stevens came to Canada from Victoria University, in New Zealand. His primary area of research is TeleLearning in small rural schools. The Chair of TeleLearning and Rural Education is a unique position that is expected to build on the existing strengths that the Province has acquired in TeleLearning.

The Mission statement of the Centre for TeleLearning and Rural Education

complements the Mission statements of Memorial University of Newfoundland and the Faculty of Education, bringing together a research focus on telecommunications technologies and small rural schools:

To facilitate research and development in TeleLearning and rural education with a special focus on effective utilization of telecommunications technologies as well as promote excellence in teaching and learning in small rural schools in Newfoundland and Labrador. (p.2)

The challenges faced by rural schools are well documented in the many provincial reports. The opportunities presented by modern Information Communications Technologies are also endorsed in the provincial curriculum documents. Bringing the two together provides strategic direction for the Centre for TeleLearning and Rural Education:

The Centre will act as a catalyst in the Faculty of Education for research and development in the areas of TeleLearning and Rural Education with a special focus on small schools in rural and remote communities in Newfoundland and Labrador. The Centre will also be promoted as a "TeleLearning Centre of Excellence" in Atlantic Canada. In addition, the Centre is positioned geographically to be the "Centre for North Atlantic Islands Comparative Educational Research" across the North Atlantic Rim, in particular, Iceland, Ireland, and Scotland. (p.27)

Five Strategic Directions are identified in the Strategic Plan:

- Facilitate or conduct research related to the effective utilization of Information and Communications Technologies (ICT) in teaching and learning with a special focus on small rural schools.
- Facilitate or conduct research related to the teaching and learning of senior high school mathematics, the sciences, and technology education, in particular in small rural schools in Newfoundland and Labrador.
- Promote excellence in teaching and learning in small rural schools with a special focus on multi-grade classrooms in Newfoundland and Labrador.
- Facilitate or conduct comparative educational research across the islands, regions, and Countries of the North Atlantic Rim with a special focus on small rural schools in Iceland, Ireland, Scotland, and Newfoundland and Labrador, as well as promote the Centre as a "Centre for North Atlantic Islands Comparative Educational Research".
- Facilitate or conduct research related to the schools in social or economic development in rural communities, with a special focus on the education and training strategies outlined in the Strategic Economic Plans of the regional economic zones in Newfoundland and Labrador. (p.28)

Various researchers working within the Centre have completed a number of research studies on these strategic directions (see reference list). The Centre also co-ordinated *The 50th Anniversary Symposium of Small Schools Across the North Atlantic Rim*, held in St. Anthony, August 11-14, 1999. However, of particular interest to this study is the Diploma in TeleLearning and Rural School Teaching, the second of the two initiatives referred to earlier.

5.15 Diploma in TeleLearning and Rural School Teaching

The Diploma in TeleLearning and Rural School Teaching was officially launched on August 13, 1999. The first ten teachers were accepted into the new program and began their first courses in September 1999. It was developed by the Centre for TeleLearning and Rural Education to be offered through the Office of Undergraduate Programs, Faculty of Education, and

with financial support from the Canada/Newfoundland Agreement on Economic Renewal. The Diploma in TeleLearning and Rural School Teaching is designed for both elementary and secondary teachers (K-12) who have completed a Bachelor's Degree in Education. It is delivered, in a TeleLearning environment, through the School of Continuing Education, Memorial University of Newfoundland. The Diploma is comprised of a total of 30 credit hours including 18 core credit hours and 12 elective credit hours (normally a one-semester course is equivalent to 3 credit hours).

There is a core of six (18 credit hours) courses:

- Education 4900: TeleLearning in a Rural School Intranet
- Education 4901: Effective Teaching Strategies for Multi-grade/Multi-age Classrooms
- Education 4902: Special Needs in the Context of Rural Schools
- Education 4903: Leadership Perspectives in Rural Schools
- Education 4904: Contemporary Educational Issues in Rural Schools
- Education 4905: Resource-based Learning in the Context of Rural Schools

Four elective courses (12 credit hours) can be chosen from:

- Education 4906: Career Development in the Context of Rural Schools
- Education 4907: Curriculum Connections in Multi-grade/Multi-age Classrooms
- Education 4908: Rural Schools and Community Relations
- Education 4909: Rural Schools as Community Learning Centres
- Education 4910: Curriculum Implementation in All-grade Rural Schools
- Education 4911: TeleTeaching in a Rural Classroom
- Education 4912: Student Assessment in the Context of Rural Schools
- Education 4916: General Classroom Music
- Education 4920-4930: Special Topics in TeleLearning and Rural School Teaching (e.g., 4920: Literacy in Small Rural Schools)

There is also provision for field-based experiences:

- Education 4913: Field-based Experience in a Rural School (TeleLearning)-3 weeks
- Education 4914: Field-based Experience in a Rural School (TeleLearning)-6 weeks
- Education 4915: Field-based Experience in a Rural School (Multi-grade/ Multi-age Classroom)-9 weeks

Although a very new program, the future of the Diploma in TeleLearning and Rural Education is uncertain. In the two years since it has been offered, enrolments are very low. Initially 21 teachers expressed interest, but only 11 actually registered and only 5 are completing courses in the suggested time frame. The first graduate is scheduled to graduate Fall, 2001. No study has been conducted on why the enrolment is so low. However, due to the small numbers, a decision was made not to accept new students in 2000-2001 but to offer courses only to those already registered. It was argued that this would provide the Faculty time to reconsider the program. There are those who take the position that the Faculty has not promoted the Diploma enough; that it is new and relatively unknown, and that teachers who need it are not aware of it. There is also the position taken by others in the Faculty that the program should be a graduate one rather than a post-first degree (undergraduate). The Faculty's self-study in 2001-2002 will examine what is happening in this area and make recommendations for its future.

5.16 Internships and Rural Schools

For the past two decades there has been concern expressed about

Table 2 provides statistics on the number of student teachers who have completed internships since Fall 1992¹¹. It reveals that out of a total of 2663 interns, 64.4% completed internships in the schools in the St. John's area (St. John's, Mt. Pearl, and Conception Bay South). That means that only 35.6% went outside the St. John's area, to other school districts. The situation is not improving. In fact, Table 2 shows that in Winter 2001, 73% (115 interns) completed internships in the schools in the St. John's area or Avalon East School District, and only 28% went to other school districts. This trend continues in Fall 2001, where 72% (39 interns) of new intern placements will be in the Avalon East School District's schools and only 28% (15 interns) in all other districts combined.

Table 2: Internship Enrolments for Years 1992-2001 Divided by Inside and Outside School District #10 (Avalon East)

Semester	Interns inside area #10	Interns outside area #10
Fall 1992	167 (61%)	108 (39%)
Winter 1993	110 (63%)	65 (37%)
Fall 1993	165 (62%)	102 (38%)
Winter 1994	149 (66%)	76 (34%)
Fall 1994	71 (61%)	46 (39%)
Winter 1995	114 (60%)	76 (40%)
Fall 1995	42 (56%)	33 (44%)
Winter 1996	113 (65%)	62 (35%)
Fall 1996	N/A	N/A
Winter 1997	115 (65%)	61 (35%)
Fall 1997	26 (51%)	25 (49%)
Winter 1998	90 (64%)	50 (36%)
Fall 1998	64 (68%)	30 (32%)
Winter 1999	138 (70%)	59 (30%)
Fall 1999	47 (68%)	22 (32%)
Winter 2000	111 (69%)	51 (31%)
Fall 2000	39 (61%)	25 (39%)
Winter 2001	115 (73%)	42 (27%)
Fall 2001	39 (72%)	15 (28%)

Total	1715 (64.4%)	948 (35.6%)
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Interns who go to other school districts in Newfoundland and Labrador often go to the larger centres (i.e., Corner Brook, Gander, and Clarenville). An indication of the problem rural schools have in attracting an intern is found in examining intern numbers in School District #2 - Northern Peninsula/Southern Labrador, the only district in the Province where 100% of the schools are rural. In the past five years, they have had only eleven interns. In some years they have had one or two a semester while in other years they have had none. One school in the District even attempted to entice an intern to the school by offering to provide assistance in covering the costs of travel and accommodation. They did not receive any applications.

In light of this situation, in the 1998-99 school year, the Centre for TeleLearning and Rural Education facilitated a partnership between the Newfoundland and Labrador Teachers' Association (NLTA), the Office of Undergraduate Programmes in the Faculty of Education, the Labrador Institute, and the Northern Peninsula/Southern Labrador School District. The Teachers' Association agreed to cover the extra expenses (transportation, lodging, incidentals, etc.) for one student to complete an internship in a small rural school in the Province. In the first year the student was assigned to St. Mary's All-grade School, Mary's Harbour, Labrador. In the following year, the program was expanded to two students, one in Henry Gordon Academy, Cartwright, and the second in St. Boniface All-grade School, Ramea. In 2000-2001, one student was assisted to complete an internship in Victoria All-grade School, Gaultois. Although there has not been a formal study of the impact of these internships on the student teachers selected or on the schools themselves, the anecdotal information is that the experience is possible.

There are obvious reasons why students wish to complete internships in the city schools close to the Province's University. First, it is more convenient - they already have accommodations, they have colleagues and a support group, and it is cheaper to stay where they are rather than relocate. Second, many students are mature students, and have families to consider, some have mortgages or leases, and others have spouses working in the area. Third, many young people enjoy the city lifestyle and prefer it to life in small isolated communities, perhaps because many come from rural areas and enjoy the change. Fourth, it is expensive to travel to many parts of the Province - especially to isolated communities in Labrador that require air travel - and apartments are scarce. Costs may be higher, especially heating costs in northern communities. However, the Newfoundland and Labrador Teachers' Association project showed that there is interest among some students if there are opportunities and financial assistance. There were five applicants for the one position in Mary's Harbour. The young woman who was selected grew up in the St. John's area and had no connection with small schools or Labrador. Her internship experience was so positive that she accepted a position for the following year in a small school just outside Mary's Harbour. When asked, she explained that the experience had changed her views on small rural schools and she saw distinct advantages in smallness. She particularly liked the family atmosphere that is found in such a school, and the opportunity she had getting to know all the students, not just her own class (personal correspondence).

The one program in which 100% of students do internships in small rural schools is the program in Native and Northern Education. This program is delivered where the students live and work, and instructors travel to the students. This, however, is a very small program, with never more than 3 interns in any year in the last nine years, and some years with none. The low numbers of interns can partially be explained by the fact that students may have the internship waived if they have five years or more teaching experience, which some do as teaching assistants. Most of the reasons for not going to rural areas listed above do not apply - in fact it is quite the reverse. It is more convenient for them to stay in local areas with their

families, and many are not attracted to life in the city.

5.2 Continuing Education/Professional Development

5.21 School of Continuing Education

Memorial University has offered distance education courses for over 30 years. Many teachers have completed programs by distance, traditionally through the correspondence (print) mode. The School of Continuing Education currently provides programs and services to more than 13,000 student registrants a year, at home and around the world. The University offers more than 250 undergraduate degree-credit Distance Learning courses annually, representing 22 disciplines in 8 faculties/schools, 150 of which are delivered in whole or in part via the Internet. Degrees are available in areas such as business, education, health, maritime studies, social work, and technology.

The delivery of education courses through the School of Continuing Education requires a close relationship between the schools and the Faculty. Some Faculty members, as part of their regular teaching assignments, offer courses through distance learning for students who are on campus as well as off. There is normally a print component (course manual, text, or book of readings), augmented by videotapes and teleconference sessions. In recent years, most courses are developed for delivery via the World Wide Web. Currently the School of Continuing Education has prepared more than 60 Web courses, with others in development. These courses may incorporate video, e-mail, and Web conferencing.

Many teachers avail of courses from the School of Continuing Education to upgrade their teaching certification or to take courses simply from professional interest. The provincial educational computer network, STEM-Net, is in all schools and provides all teachers with free Internet accounts for up to 10 hours per month. Many teachers use these accounts for course work through the School of Continuing Education. A help line through the school provides technical support upon request. Connections in some small rural schools, especially those most isolated, are a source of frustration. Access to Broadband service would help students avail of the school's offerings. Minimal requirements listed in the *Winter 2001 Distance Education* brochure include: full access to all Internet services through an Internet service provider, a TCP/IP protocol, and a Graphical Web Browser (Netscape 4.0 or Internet Explorer 4.0).

5.22 Faculty of Education

For many years, the Faculty of Education provided the main source of formal continuing education for teachers. Teachers returned to summer sessions to upgrade their teaching certificates and at the same time engaged in professional development. This has changed, however, as program specialists at the district level and teachers in the schools have all become better qualified. Other agencies, such as the Newfoundland and Labrador Teachers' Association, have also increased their services. In addition, in recent years, modern technologies such as ICT have lessened the provincial hold that the Faculty of Education, Memorial University had on teacher training. Many teachers now register as distance learners with universities from other parts of the country and even internationally, with universities in Scotland and Australia. Despite the competition, the Faculty, working with the School of Continuing Education, is still heavily involved with the continuing education of teachers, especially through the graduate programs offered, but also through institutes. A number of initiatives are particularly significant to this report. The most important is the creation of the new graduate program, Master of Education (Information Technology). However, the trend to develop core courses as well as electives for distance delivery is also significant for students who wish to live in rural areas and continue with university courses. Ongoing research and school/district

partnerships also contribute to the continuing education of practising teachers and school administrators.

5.221 Master of Education (Information Technology)

The graduate program in Information Technology, which began September 1, 2000, is offered in a partnership agreement between Memorial University and the University College of Cape Breton (UCCB). It is designed to facilitate the educational use of Information Technology in a wide variety of settings. The program is expected to be of interest to educators at all levels including K-12 teachers, school administrators, those in the post-secondary system, business and industry, as well as those in most other adult learning situations.

Information Technology in this Master of Education program encompasses computer, communications, networking, and multi-media applications. The stated overall intent of the program is to:

- Provide educators with skill sets and pedagogical expertise that will enable them to address computer and related information technology in a teaching/learning situation
- Develop potential information technology leaders for the educational system
- Develop instructional designers, for a variety of educational settings, who are able to combine information technology with learning theory to enhance curriculum development and delivery
- Provide a basis for the continued professional development of educators in the area of information technology
- Develop an awareness of the applications of information technology in a wide variety of educational contexts
- Develop research expertise and potential in the use and application of information technology for teaching and learning purposes

Students are expected to have, prior to acceptance, some fundamental knowledge and skill with respect to information technology through prerequisite experiences, and have an undergraduate degree in an appropriate discipline. It is intended that UCCB or MUN will offer all courses online. Access to specific computer hardware, software, and the Internet is required and will be the responsibility of each candidate.

5.222 Distance Delivery of Courses

The Faculty of Education has been at the forefront in designing courses for distance delivery. Currently, there are 64 education courses available by distance through the School of Continuing Education (see Appendix G for a complete list). Out of these 64 courses, 41 are undergraduate, Web-based courses. An undergraduate student can complete courses by distance if they are available and if they meet the student's program requirements. There are 23 graduate courses, 19 of which are available through the World Wide Web. Current Issues in Rural Education is one of the latest additions to the growing number of Web-based courses being developed in the Education Department.

In the mid-1990s, a decision was made by the Faculty to develop Web-based versions of the core courses in the four main programs for the Master of Education. This has allowed teachers in rural and even remote areas to pursue graduate work during their school year.

Some groups of teachers have expressed an interest in packaging courses of interest to special interest groups so that cohort groups can be admitted and proceed together to completion of programs. One such package is for the training of teacher-librarians. Due to low enrolments though, it has been difficult to schedule courses specific to teacher-librarianship, and some courses have not been offered for several years. However, in Fall 2001, with

the support of the Provincial Learning Resources Special Interest Council and the Newfoundland and Labrador Teachers' Association, an advertising campaign will be run. The hope is that it will attract a sufficient group of applicants to whom the Faculty can offer all courses on the teacher-librarianship program, via the World Wide Web, within a three-year period. This would allow teachers located anywhere in the Province, or elsewhere, to enrol and complete their programs in a reasonable period of time.

5.223 Faculty and School/District Research

Continuing education experiences for teachers in small rural schools have also occurred as a result of research projects between members of the Faculty of Education and schools. In the Avalon West School District, two research projects contributed to the continuing education of teachers in the schools that are involved. The Action Research Project (see Appendix C, No. 12) placed two teachers who are graduates from ICT programs in classrooms to support teachers in integrating ICT across the curriculum. The Action Research Project also led to all-day school-based professional development sessions based on data collected in each of the 13 project schools, as well as involved the principals in full-day sessions on current and emerging leadership theory.

The Online Professional Development for Educators Network (OPEN) Project is also a means of continuing education (see Appendix C, No. 5). This Project challenges district staff as well as participating schools to create an educational network that will facilitate teacher learning and school-wide professional development. This partnership involves faculty members from two Faculties of Education (Memorial University and York University) and two school boards (Avalon West School Board and Toronto District School Board). The design of this project deliberately focused on a rural board and an urban board in an attempt to understand the strengths and weaknesses of both.

5.23 School Districts and Schools

School district offices work closely with the Department of Education to sponsor professional development experiences. An influential group in determining the professional development sessions that will be available to teachers are the 11 provincial assistant directors of programs who meet regularly with the Assistant Deputy Minister of Education. For example, in 2000-2001, this group decided that there were four priority areas in professional development: Primary Literacy, New Curriculum Implementation, Diverse Learners/Teaching and Learning Strategies, and Leadership In New Curriculum Implementation. Intermediate (junior high school or grades 8 and 9 mathematics) was also targeted. These four areas were incorporated into a Professional Development Plan.

In Primary Literacy, each school district sent a select number of teachers for a weeklong session of training. Using the train-the-trainer model, these teachers were expected to train others in their own districts. This initiative is ongoing, with different aspects of literacy targeted for different timeframes.

All school districts are engaged in summer institutes. For example, for the summer of 2001, Avalon West School District sponsored the following Summer Institutes:

- **Winschool** (2 days each level). Basic and advanced training in an administrative software package. The intended participants: School Administrators and School Secretaries.
- **Guided Reading** (2 days). Strategies for a comprehensive balanced reading program. The intended participants: Primary Teachers.
- **Leadership at Work** (2 days). A focus on the role of the principal and vice-principal sponsored in collaboration with the Newfoundland

and Labrador Teachers' Association. The intended participants: Principals and Vice-Principals.

- **Intel Teach to the Future** (3 Institutes)(3 days). Sessions to empower teachers to create unit plans of authentic and engaging technology-integrated project-based learning activities, using Avalon West School District teachers who are certified Intel Master Teachers. The intended participants: Classroom Teachers.
- **Diverse Learners/Learning Disabilities** (2 days). Emphasis on the definition of learning disability and the strategies to accompany the learning disabled student in the classroom. The intended participants: All educators from K-12, be it special education teachers or regular education.
- **Balanced Literacy** (2 days). Focus on the different strands of the language arts curriculum. The intended participants: Primary Teachers.
- **Basic Corel Office Suite in the Classroom** (2 days). Two complementary Introductory Computer Institutes covering topics designed to make teachers more comfortable with computer use. The intended participants: Classroom Teachers.
- **Leadership for Aspiring Administrators** (2 days). Provides opportunities to consider the pros and cons of administration, how to get into administration, and what is valued in current administrative roles. The intended participants: Teachers, Department Heads, Vice-Principals, and Principals

All schools have growth and development plans. In these plans they have a section committed to professional development. Most school boards grant each school three professional development days throughout the school year that they can use at their discretion for professional development. Schools tend to focus on their own priorities during these days, although they would generally fall into district and provincial priorities as well.

5.24 Newfoundland and Labrador Teachers' Association

All teachers, principals, and district program specialists in the Province belong to the Newfoundland and Labrador Teachers' Association (NLTA), which was founded in 1890. It is a professional organization that serves the approximately 6400 teachers in the K-12 system from its office located in St. John's. The Biennial General Meeting (Convention) of teacher delegates is the main governing body of the Teachers' Association. It has an elected Executive Council consisting of 12 members, a President, and Vice-President, all elected by the delegates to Convention. The Association provides services to members through 6 main divisions: Administration, Benefits and Economic Services (Teacher Welfare), Communications, Finance, Professional Development, and Printing Services. In each division there are professional and support staff, headed by the Executive Secretary who is the Association's Chief Administration Officer. Also, it is affiliated with Education International, representing teachers around the world, and the Canadian Teachers' Federation, representing the approximated 220,000 teachers in Canada.

The Constitution and By-laws give the authority for the direction of the Association between Conventions to the Provincial Executive Council. In addition, there are 52 Branches who appoint their own presidents and executives. The Branch presidents and the Provincial Executive Council make up the Joint Council, a decision-making body that assists in managing the Association between Conventions.

The Association represents teachers' interests in two main areas - Teacher Welfare and Professional Development. In Teacher Welfare, the Association operates two collective agreements - the Provincial Agreement and the

Labrador West Agreement. The Division of most interest in this Chapter is the Professional Development Division. Its Mandate is to provide quality professional development for the members of the Association and to support them in meeting the challenges of the teaching profession. They do this through their councils, committees, and programs.

5.241 Special Interest Councils

According to the Newfoundland and Labrador Teachers' Association, Special Interest Councils, with their formal structures and elected executives, "for three decades have spearheaded professional development in Newfoundland and Labrador" (NLTA Infosheet). The 21 Special Interest Councils serve the interests of particular groups: curriculum areas, small schools, counsellors, administrators, etc. The Councils are formed by groups of teachers, numbering at least 25, who have an interest in an established area, a service area, or an interdisciplinary group. According to the Association's Website <http://www.nlta.nf.ca>, the main responsibility of a Special Interest Council is "to keep teachers informed on innovative and exciting new teaching ideas and curriculum changes in various disciplines or special interest areas" through "in-service sessions, conferences, newsletters, and staff-based programs."

Each Council has a provincial executive and many have regional executives in different parts of the Province. Over the years, Special Interest Councils have worked with other educational stakeholders to co-sponsor major educational conferences, workshops, and institutes. They regularly hold provincial conferences in conjunction with their annual general meetings. Of particular interest in this report are two Special Interest Councils: the Small Schools Council and the Technology Education Council. By having their own Council, the teachers in these two areas can share information, lobby for changes they see as needed, and meet at annual conferences hosted by the Council.

5.242 Newfoundland and Labrador Teachers' Association Centennial Funds and Awards

Centennial Funds and Awards support continuing professional development of certified teachers in the Province. The funds and awards are:

- **International Conference Presenters Program.** This funding is for the explicit purpose of funding presenters to an international conference.
- **Centennial Project Awards.** The Association funds ongoing educational projects submitted by qualifying teachers, as long as they meet the purposes of the Centennial Fund. Projects submitted for funding should have a demonstrable benefit to teachers, students, and/or the learning environment.
- **International Programs.** The Association makes available a maximum annual fund to support international Projects initiated and/or approved by the NLTA Executive. Funding will be provided to support two specific and separate components: teacher organizational development in a developing country, through such initiatives as Project Overseas and the work of an organization working with children in a developing country.
- **Educational Research Program.** The Association makes available a maximum annual fund to support educational research projects initiated and/or approved by the NLTA. A maximum of three research projects will be funded in any one academic year. Preference will be given to funding projects that are classroom-based and conducted within an action research mode. The focus of these projects should be either: teaching, learning, methods of instruction, curriculum, student assessment, or other classroom-related topics.

- **Proposal for New Programs.** This program is initiated by the NLTA Executive to fund the cost of developing, implementing, and revising new Professional Development initiatives. Programs must benefit classroom teaching practices, conditions, experiences, or leadership development.
- **Centennial Study Award.** At least two Study Awards (if qualified applications are received), valued at \$2500 each, are awarded to teachers on an annual basis to support the continuing professional development of certified teachers in the Province.

5.243 The T-4 Program

T-4 represents "*Teachers Talking To Teachers*". The program allows for the provision of professional development with teachers as consultants or facilitators. It provides an opportunity for teachers to discuss, with colleagues, innovative practices and pilot projects in the field. The program recognizes that there are many exciting innovations taking place in the classrooms of Newfoundland and Labrador, and that teachers would benefit from being able to talk to colleagues engaged in these innovations. The program is also based on the premise that the most effective professional development takes place when teachers work together in relatively small groups. The T-4 program is designed to supplement and enrich the other forms of professional development provided by branches, councils, and schools.

5.244 Standing Committees

- **The Professional Issues in Teaching Committee.** This committee, chaired by an executive member and made up of teacher volunteers, advises Executive Council on professional development issues. It also makes decisions on fellowships and professional recognition awards.
- **Equity Issues in Education Committee.** This committee, chaired by an Executive Member and made up of volunteer teachers, monitors the policies and practices of the Association and advises Executive Council on issues relating to equality in all areas of the teaching profession.
- **Curriculum Committee.** This committee advises Executive Council on all matters related to curriculum; establishes policies and procedures; co-ordinates liaisons between the Association and other agencies involved in curriculum development; and recommends Association response to curriculum issues.

5.245 Awards and Bursaries

- **Barnes Award.** This award is presented annually to recognize outstanding professional service provided at the Special Interest Council Level.
- **Johnson Bursaries.** These bursaries are available for teachers enrolled full time at the undergraduate or graduate level.
- **Teacher's Professional Development Fund.** Grants are awarded five times per year to individuals or groups who wish to attend out-of-province or in-province (between Labrador and the island portion of Newfoundland) professional development sessions.

5.246 Conferences, Institutes, Workshops, and Seminars

- **CONTACT Conferences.** Conference On New Techniques And Classroom Teaching (CONTACT) is a joint project of the Teachers'

Associations of the Atlantic Provinces. The Newfoundland and Labrador Teachers' Association sponsors a number of teachers to attend this conference which is hosted alternately in the Atlantic Provinces each year in August.

- **Developing Successful Schools Institute (DSS).** This leadership institute for administrators is hosted annually in July at Mount Allison University, Sackville, New Brunswick. It is a joint project of the Teachers' Associations of the Atlantic Provinces and the New Brunswick Department of Education.
- **Workshops.** The Professional Development Division also designs and delivers sessions on a variety of identified needs at the school, district, and branch levels. Some of the workshops offered in the 2000-2001 school year were: Learning Style and Teaching Strategies, Brain Based Learning, Classroom Management, Conflict Resolution, Team Building, Strategic Planning (Situation Analysis), Leadership, Teaching Strategies, Student Motivation, Stress in the School Workplace, Mentoring, and The Administrator's Role in Supporting Beginning Teachers.

5.247 Teacher Induction Program

This program supports beginning teachers as they make the transition from pre-service education to the acceptance of full professional responsibilities. The program is based on a mentoring model that pairs beginning teachers with senior and exemplary colleagues. It was initiated by the Newfoundland and Labrador Teachers' Association and is offered through school districts in partnership with the Association.

5.248 Virtual Teacher Centre (VTC)

In the 2000-2001 school year, the Teachers' Association received funding from the Office of Learning Technologies (OLT) within Human Resources Development Canada. In its Website, OLT states: "The OLT works to raise awareness of the opportunities, challenges, and benefits of technology-based learning and to act as a catalyst for innovation in the area of technology-enabled learning and skills development." It says that the vision of the OLT is to "contribute to the development of a life-long learning culture in Canada" and that the Mission of the OLT is to "work with partners to expand innovative learning opportunities through technologies". The partnership with the Teachers' Association is tied tightly to its Vision and Mission. It is to develop a Virtual Teacher Centre (VTC). The Association's Division of Professional Development is heading the project, seeing it as a means to enhance its commitment to professional development for its members through the use of Information and Communications Technologies. Within the Province, other partners are involved:

Through partnership with the Department of Education the VTC expects to deliver online follow-up PD to the Department's implementation sessions. This will permit all teachers to access the materials and learning experiences related to new and existing programs. In collaboration with the Faculty of Education, expertise and research is being shared. A special relationship has been struck with the Centre for Distance Learning and Innovation which has a complementary Mandate. (NLTA *Bulletin*, May 2001, p.20)

The Virtual Teacher Centre has a Mandate to develop, facilitate, and deliver professional development and classroom support to teachers throughout Newfoundland and Labrador. Professional development opportunities will be available online and may be accessed from any location, at any time, provided connectivity is available. Teachers can expect to have a place to share lesson plans and units based upon provincial curricula, electronic access to newsletters and journals, as well as links to some of the best educational resources on the Web. There are plans to have in-depth

information on special topics, as well as learning modules or short courses on topics of interest. Envisioned also are discussion forums, special guest Webcasts, and Internet-based publishing opportunities.

In its brochure, the Virtual Teaching Centre states that it is committed to:

- Workplace training opportunities
- Developing a model of e-learning with application across all sectors
- Providing quality learning content for the Web
- Developing content reflecting the needs of adult learners
- Linking the K-12 education sector to community development
- Providing just-in-time access to professional resources
- Improving the ICT skills of one of the Provinces' largest workforces

The first major initiative of the Centre is to develop a Web presence for and in collaboration with each of the 22 Special Interest Councils. Every Council will be provided with its own distinct WebPage with a focus on professional support for members. The co-ordinator of the Centre was hired in Spring, 2001 and it was officially launched November 23rd 2001.

The Virtual Teaching Centre has great potential for small rural schools. The Mandate of the Newfoundland and Labrador Teachers' Association is to provide services to all members, and its commitment is to greatly increase the content available through ICT to teachers across the Newfoundland and Labrador. The success of this will rest on a number of factors, not the least of which is the ability of teachers in the small rural communities to access the Internet. The need for bandwidth to allow such access is critical.

5.3 Conclusion

In summary, teacher education has two major components: pre-service and continuing education. The pre-service program for teachers entering Education at the Faculty of Education, Memorial University, is comprehensive, with nine programs available. The majority of students, however, are enrolled in the two Bachelor of Education programs preparing teachers for either primary/elementary classrooms (kindergarten to grade 6) or intermediate/secondary classrooms (grade 7 to grade 12). The primary/elementary program, introduced in 1999, is a generalist program, meaning that the teachers are seen as generalists, responsible for teaching all subjects in the primary and elementary program. The undergraduate program for intermediate and secondary teachers is an after-degree specialist program, Bachelor of Education (intermediate/secondary), introduced in September 1993. In the past year, a new program has been added - the Bachelor of Education (intermediate/secondary) Conjoint with the Diploma in Technology Education - designed to meet the need for technology education teachers in schools.

Several features of these two programs are designed to better prepare students for small rural schools. All students who are admitted to the intermediate/secondary program must have two teachable areas, based on findings that most graduates from the program teach in small high schools and are required to teach in more than one area. All students on the primary/elementary program complete compulsory courses in the teaching of music and physical education. The aim is not to prepare them as specialists in these areas, but to assist them as classroom teachers, especially those who will teach in small schools lacking such specialists.

There are several concerns regarding admission requirements in these programs. First, admission requirements do not allow business courses to be admitted as either a focus area (in the primary/elementary program) or a teachable area (in the intermediate/ secondary program). This is surprising since enterprise and entrepreneurship education is now an integral part of the K-12 system. The Bachelor of Education (intermediate/ secondary) Conjoint with the Diploma in Technology Education has no specific admission requirements other than a first Degree, meeting admission

requirements for The Bachelor of Education (intermediate/secondary). It was pointed out that this is insufficient, as technology education teachers require minimal backgrounds in physics.

The education component of the programs also raises some concern. There are no specific methodology courses, in either program, designed to prepare teachers to teach enterprise or entrepreneurship education. Similarly, there are no courses or even course modules that focus on the role of education and the school in regional or community economic development. Neither program requires students to be introduced to technology education. The attention to technology skill differs in the two programs. In the primary/ elementary program, all students are expected to have basic computer keyboarding skills in the first semester, and all are required to complete a course, Computers, and Learning Resources for Primary/Elementary Teachers. There are no such requirements in the Intermediate/Secondary program. There are electives, such as ED 3943 Curricular Uses of Computers, but it is one of 25 possible electives, from which students may select only two. Individual instructors may well build in ICT competencies in their courses, but it is not compulsory.

Finally, very few students from either program complete their internships in rural schools. The current procedure of allowing students to choose the district for their internship means that most (approximately 75% in the past year) will complete their internships in urban schools in the metropolitan area surrounding St. John's. There is no exposure to teaching strategies used in small, multi-aged classrooms, although many of the students may well end up teaching in such schools. Rural educators argue that the attractions of small schools are enhanced if student teachers see the potential they can offer.

At the undergraduate level, two programs are specifically targeted to small, rural schools. One program is available only to students who are mainly members of the Innu or Inuit peoples of Labrador, and is delivered in Labrador. The second program, the Diploma in TeleLearning and Rural Education is open to any student after completion of the initial Teacher Education Degree. All courses on this program are Web-based and designed specifically for teachers in small, rural schools. Unfortunately, enrolments are low in both programs. Little can be done about the program in Native and Northern studies since it is targeted at a small population and will never be large. However, the Diploma in TeleLearning and Rural Education can meet the needs of rural teachers anywhere, whether in the province, country, or elsewhere in the world. Questions have been asked about why the enrolments are low and what action should be taken regarding this program. The Faculty established a committee to study in May 2001 and it is due to make its report in Fall 2001.

Whereas Memorial University's Faculty of Education is the only provincial body providing pre-service education, continuing education involves a number of players. The Faculty of Education, through its graduate programs, has been and continues to be a major player. Working with Memorial's School of Continuing Education, there is a trend to offer more and more courses through TeleLearning. New programs, in particular the Master of Education (Information Technology), are meant to meet new demands. The Faculty also contributes to continuing education through research projects in schools. The role of other agencies is also of increasing importance. The Department of Education, working through school districts, offers summer institutes and in-service sessions throughout the year. An exciting new initiative in the Province is the Virtual Teachers' Centre, being developed by the Newfoundland and Labrador Teachers' Association, in partnership with Federal funding agencies and provincial educational stakeholders. The Centre for TeleLearning and Rural Education, within the Faculty of Education, bridges both areas covered in this Chapter - pre-service education and continuing education - especially as it relates to small rural schools. Its Mandate also requires it to facilitate research in this area. This Centre is also under review, by a committee established in June 2001.

The description of professional development opportunities available to teachers may lead one to believe that there are few problems in this area. Yet, a constant criticism of the provincial education system is that there is not enough professional development. It is not easy to be brief in analysing what is a very complex situation involving many different players at a time when the educational system is undergoing tremendous change. However, it is clear that a new model of professional development for teachers is emerging within the Province.

There is no question but that the Department of Education set the stage for professional development in a number of ways. First, since it is responsible for curriculum development, it controls the introduction of new courses, and therefore, establishes in-service needs. They also are involved in setting priorities for in-service, working in collaboration with the assistant directors of programs. When there are a number of course changes, as with the case in Fall 2001, there are many teachers who need to attend in-service sessions simply to keep up with what is happening. The training problem faced by educational administrators is that unless the school is closed down for professional development activities, substitute teachers must be hired and placed in the classroom for teachers who are attending professional development sessions. This is a costly procedure (the current rate is approximately \$170 per day for each substitute teacher) so the Department of Education limits the number of substitute teacher days available to school boards. A comment made by a district administrator just prior to school opening in the Fall of 2001, was that the number of new courses being introduced in Fall 2001 meant that there were not enough substitute teacher days to even cover that need. The only way the administrator could see to provide teachers with in-service for the available courses was to have a number of school shutdown days. Although schools, with permission, can be closed for in-service sessions for teachers, the number of such days is carefully controlled by legislation and regulation.

Even if in-service sessions are provided, the complaint is often that there is no follow up. In probing this situation, it appears to be a problem of lack of finances and too few people to attend to so many details. With cutbacks in the educational system, there have been reductions in the number of consultants at the Department of Education and the number of program specialists at the school level. Schools have expertise but few department heads. Especially in small rural schools, teachers have no release time to conduct professional development sessions for colleagues. New alternative means for professional development are currently being explored. The most promising is the Virtual Teachers' Centre because it is bringing together all the stakeholders - teachers, school boards, the Department of Education, STEM-Net, and the University's Faculty of Education. The Centre for Distance Learning and Innovation is also bringing a new perspective to discussions. The Faculty, the school districts, and other agencies (such as STEM-Net) are also exploring new delivery methods. For example, in Fall 2001 the Faculty of Education is introducing a new online program for Teacher-librarians which will bring together cohort groups through TeleLearning and on-site locations; STEM-Net has pilots and projects underway exploring new uses of computer networks for teachers use. Districts are also exploring new models for teachers' professional learning, such as the OPEN Project in the Avalon West School District. Whatever form professional development will take within Newfoundland and Labrador, it appears certain that ICT will play a significant role.



CHAPTER SIX

LESSONS LEARNED

The stated objective for the Canadian Rural Partnership has been to participate in this project as it focused on rural schools within the Province of Newfoundland and Labrador. Of interest to the Partnership is "how

Information and Communications Technologies are being applied in rural and remote schools in the Province" (Contract Objective, 2.1). There is an expressed hope that the lessons learned from the Newfoundland and Labrador education system can be used as examples for other rural and remote communities across Canada.

The overall project questions explore seven major areas (see Research Questions in Section 1.71). In presenting findings pertinent to the objectives of the Canadian Rural Partnership, the topics as outlined in the agreement with the Canadian Rural Partnership (Deliverables, 4.1) were followed. They are:

1. Examination of how Information and Communications Technologies are being applied in rural and remote schools in Newfoundland and Labrador including:
 - School curriculum
 - Teaching changes - certifications, Diploma program at Memorial University of Newfoundland
 - Links between ICT and economic development strategies and education in rural communities
 - Results - affects on students and their future employment opportunities and expectations
 - Financial and economic costs of applying technology - erosion of traditional jobs and migration of youth seeking jobs to apply new skills
2. Lessons learned from the Newfoundland and Labrador system that can be used as examples for other rural and remote communities across the country

In organizing the report, the findings pertaining to these topics are covered in four chapters. An overview of the school curriculum is provided in Chapter Two, with specific details of curriculum inclusion of ICT in Chapter Three, and economic development in Chapter Four. Teaching changes are covered in Chapter Five. The links between ICT, economic development strategies, and education are explored in Chapters Three and Four in particular. The affects on students and their future employment opportunities and expectations are mainly considered in Chapter Four. Since this is a qualitative study, no attempt was made to provide tables of financial and economic costs of applying technology. However, the effects of erosion of traditional jobs and migration of youth seeking jobs to apply new skills are considered throughout the report.

Whether the lessons learned from this project can help other rural areas in Canada is left for the reader to decide. Since education is a provincial responsibility, there are unique features in the education system in Newfoundland and Labrador and these may well offer new insights to residents of other provinces. For example, the new Virtual Teachers' Centre and the partnerships that exist between governments and public and private agencies may well inspire others. The role of the Federal Government is also a common element that applies to all provinces. This study found that the Federal Government, through its many programs, and working with the Provincial Department of Education, is a key player in the development of the school curriculum, and the major activities involving ICT, economic development, and schools. The national programs described in this report are available to all provinces, and the ways in which they have been used in Newfoundland and Labrador may serve as examples of new strategies that others may adopt.

Regarding the focus on rural communities and rural schools, several points need to be made. In a sense, the whole Province of Newfoundland and Labrador may well be considered as rural. The entire provincial K-12 school system has fewer students than many of the large urban boards in other provinces. As well, it must be remembered that the Essential Graduation

Learnings and the Curriculum Outcomes apply to all schools, whether big, small, rural, or urban. Larger urban schools may offer more courses and provide students with more choices, but the minimal number of courses to meet graduation requirements must be offered in all schools, according to the levels they offer. It is, therefore, not possible to discuss rural school curriculum without seeing it in the context of the whole provincial curriculum. There are rural strategies and issues, and these are addressed.

In the sections that follow, the major lessons concerning small rural schools as addressed in this study will be summarized.

Lesson 1: TeleLearning is the Current Reality in Small Rural Schools.

Small rural schools must by law, provide equal access to educational opportunities for students. When enrolments are declining, as they are in Newfoundland and Labrador, the ability of schools to deliver programs are limited. In these cases, alternatives must be considered. The use of TeleLearning is one such alternative that must be pursued by small rural schools, especially those offering Intermediate and Secondary programs. Much is already occurring in TeleLearning but there is a need for much more. There is a need for research studies in effective TeleLearning strategies and initiatives as well as the effects of TeleLearning in small rural schools. In addition, school boards, who are given the responsibility to implement the curriculum, should be supported by all levels of government and by funding agencies, both provincial and national, in the adoption and implementation of TeleLearning initiatives. Teachers also need training in how to effectively use TeleLearning, as both part of pre-service and continuing education credit and non-credit programs. Provision of substitute teachers needs to be taken into account if the implementation of these programs is to be a success.

Lesson 2: ICT has a Positive Effect in Small Rural Schools and must be Supported.

Small rural schools need to access the Internet and use Information Communication Technologies effectively if TeleLearning is to be fully utilized. In order to implement the prescribed curriculum as envisioned by curriculum developers and to take advantage of national, provincial, and regional opportunities, schools need high-speed, two-way access. Therefore, to participate fully, small rural schools need adequate bandwidth with an optical fibre infrastructure as the end goal. The Provincial Government, Regional Economic Development Boards, municipalities, Strategic Social Plan Committees, school boards, and schools need to work together towards shaping schools as community learning centres. These schools need a provincial service provider with the capacity to meet current and emerging needs, in the way that STEM-Net has done since its inception. This provider would also need support and funding from its provincial government. At all levels, there is a need for technical support, available within a reasonable time and geographical distance.

Presently, some school districts cover a large geographical area and a single technician cannot be expected to cover all schools within the district boundaries. Support and funding from the Department of Education in the provision of ICT technicians would prove beneficial for all those involved and work towards a more efficient transition to continued use of Information Communication Technologies in rural schools. Since ICT is to be integrated across the curriculum and infused into an existing curriculum, the Department of Education needs to explore alternative ways of supporting classroom teachers as they engage in this field (support such as now exists with the REDAS project and the GrassRoots projects, are good examples).

Lesson 3: Partnerships are Essential.

The examination of the Avalon West School District illustrates the importance of external partnerships for small rural schools. The operational funds available from the Provincial Department of Education do not provide sufficient resources to implement the curriculum as envisioned in current documents. The most significant player in providing external funds is the Federal Government, through Federal-Provincial agreements and national

programs. Funding for ICT, and community economic development initiatives come mainly from Federal Government programs. All schools need to access funding available from national sources. Small rural schools in particular, where principals teach at least part-time, need support in obtaining the information necessary for successful proposal writing and the negotiating of successful partnerships. The role of the Partnership Co-ordinator at the district level, who will work with schools in this role, is essential if full advantage is to be taken of external partners. The Provincial Department of Education needs to recognize the importance of the Partnership Co-ordinator and make provisions for such a position in all school districts, through a Federal/Provincial cost sharing agreement, if possible. The Department of Education's assistance in adopting basic guidelines and resources would ensure consistency across all boards in the position of Partnership Co-ordinator. Notwithstanding this, there must be sufficient flexibility for the Partnership Co-ordinator to work within the parameters of the District's strategic plan, which will vary among districts, to some degree.

Lesson 4: External Projects Need to Build in Sound Project Management.

Even when externally funded projects are successful among users and designed in collaboration with educators, there is need for a champion - a project manager who will promote the program at all levels of the system, and ensure districts and schools (principals and teachers) are informed. Unless funding is provided for this project champion, excellent resources may be in-serviced inappropriately or may not reach the intended users at all. Funding agencies, whether Federal/Provincial Government departments, agencies, or private businesses, need to consider project management in their proposal criteria. If the project is intended to supplement the prescribed curriculum, funding agencies need to recognize that the school board is responsible for implementation. The school board office should therefore be involved and supported in implementing any such projects in classrooms. Ultimately, the school board is accountable. Government departments and all other funding agencies need to plan for project management when funding projects and ensure that there are champions in the system who will promote and monitor projects. School Boards need to be involved in projects that require implementation in schools and classrooms.

Lesson 5: Multi-age Education is an Alternative Approach.

Due to the geography and the isolation of some coastal communities, there will always be a number of small schools in Newfoundland and Labrador. As school populations decline, it becomes difficult to maintain a graded approach. Yet, the provincial curriculum is developed as a graded system and the documents produced for school and teacher use are developed for graded classes. An alternative approach is for the Provincial Department of Education to provide resources and training not just for graded systems but also for multi-age education. Although not restricted to small rural schools, this approach will allow such schools to individualize the curriculum and allow children within a wide range of ages and abilities to be accommodated in one classroom. For this to occur, teachers need access to learning resources that support the multi-age approach. In addition, the agencies responsible for continuing education for teachers (NLTA, Department of Education, school Boards, and schools) must provide opportunities for continuing education in multi-age education in small schools.

Lesson 6: New Approaches are Needed in Career Education.

The lack of career education programs in small rural schools is a major concern. There are too few programs, and not enough guidance counsellors available to fill positions. The guidance counsellors who are in position are university trained, and their attention is focused mainly on students needing personal counselling. There are also heavy demands placed on them for testing and assessment. Career education programs in schools are not seen as priorities and the value of such programs needs to be recognized. Programs could be strengthened if career practitioners are also available to work with guidance counsellors, teachers, and students. Such career practitioner programs have national standards and guidelines, and exist in

other provinces (for example, Career Development Diploma and Certificate Program, Concordia University College of Alberta, Edmonton, AL; Career Development Practitioner Certificate, Conestoga College, Kitchener, ON; and Certificate in Career Development, Athabasca University). The School of Continuing Education, Memorial University, needs to be asked to explore the possibility of a certificate program for career practitioners, according to these Standards and Guidelines.

Career practitioners can come from varied backgrounds (college as well as university), may be employed by different agencies (Regional Economic Development Boards, HRDC, ACOA, as well as school districts), and bring new energy to career education programs in communities and schools. An essential requirement is that the career education program provides students with information on local career opportunities, potential areas for employment, and local training opportunities, as well as additional general career information. Information on local economic development is available through the local Regional Economic Development Board and schools need to be working closely with them on career education. The Centre for Distance Learning and Innovation along with the Provincial Departments of Education; Industry, Trade and Rural Development; and Youth Services and post-secondary education, need to develop and support effective career education programs (credit courses and others) and explore delivery of these programs for the K-12 system through TeleLearning.

There is also a need to work closer with parents. School districts and communities must bring students and parents into the development of programs for career education and encourage their participation.

Lesson 7: There is a Need for Co-operative Education Programs.

The schools in this study would like to see co-operative education programs re-instated, not just for students-at-risk but also for high-achieving students who wish to explore different disciplines and careers. An examination of co-operative education programs in the Province reveals that, currently, this option is available mainly in urban areas. Rural areas have additional expenses - especially transportation - and have fewer teachers available to co-ordinate such programs. They are unable to offer such courses even though there is a desire to offer them to students. Ironically, these rural students are the ones who need co-operative education most. The success of the REDAS program, the Y Enterprise program, and the Junior Achievement program in the Avalon West School District is an indication of support available from the business community, which should be capitalized upon. Funding agencies at all levels should consider ways to provide co-operative education opportunities to students in small rural schools and the business community, through external programs and Regional Economic Development Boards, must be invited to participate in the creation and establishment of these programs.

Lesson 8: Changes are Needed in Teacher Certification and Admission Criteria.

Newfoundland and Labrador have included Enterprise Education (which includes Entrepreneurship) in all levels of the curriculum, K-12. To meet graduation requirements all students need 2 credits in Economic or Enterprise Education. Yet, the Department of Education's teacher certification regulations do not recognize business as a teachable area for purposes of certification. Nor does the Faculty of Education's admission requirements - which are designed to ensure graduates meet teacher certification regulations - recognize business courses. It is not surprising, therefore, to discover that there are few teachers with a background that prepare them to teach in this area. Changes are required in teacher certification so business courses can be used as a teachable area in Enterprise Education and admission requirements at Memorial University's Faculty of Education should reflect this change.

Lesson 9: Teachers Need Preparation in Enterprise Education.

The current pre-service programs at Memorial University, Faculty of Education, do not fully prepare students in Enterprise Education. At the

primary and elementary level, classroom teachers are generalists and are expected to be prepared in all subject areas. At the intermediate/secondary level, teachers are trained as specialists, with two teachable areas. In both programs, Enterprise Education, as an integral part of the provincial curriculum, needs consideration. To ensure primary and elementary teachers are prepared to teach Enterprise Education, the Faculty of Education needs to introduce this topic as part of the professional program for all students (either as a course or a module within a course). Qualified teachers for Enterprise Education in intermediate and secondary schools are needed and the Faculty of Education must be asked to develop an appropriate methodology course in Enterprise Education, or a module in Enterprise Education for inclusion in an existing course.

Lesson 10: Teachers Need to be Introduced to Regional Economic Development.

The pre-service programs in the Faculty of Education do not include a study of the relationship between regional economic development and schools. Although individual students may choose to study this topic as an area of interest in an assignment, or individual instructors may choose to include the topic, there is no formal commitment to include it and it is not listed on any course description provided in the current Calendar. Yet, in the Province, the Strategic Social Plan has adopted an integrated approach to development, where schools are to engage as key partners with other social agencies to bring about community and economic development. The Faculty of Education needs to ensure that all students, as part of their program, be introduced to the strategic planning directions of the Province, the infrastructure that has been created to achieve these plans (such as Strategic Social Plan (SSP) and the related Committees, and the Regional Economic Development Boards). They need to be provided opportunities to explore the links between the school and community and regional economic development.

Lesson 11: Teachers Need to be Introduced to Technology Education.

Technology education is an integral part of the K-12 prescribed curriculum. Yet, teachers who are in the primary/elementary program and the intermediate/ secondary program are not introduced to technology education as a field of study in the curriculum. There is a great deal of confusion over exactly what technology education is, with some confusing it with the older model of Industrial Arts and others. The Technology Education Framework requires primary and elementary teachers to infuse the Technology Education Outcomes throughout the curriculum, across subject areas. Yet, they are not exposed to this expectation or introduced to it as a field of study in their pre-service training. At the intermediate/secondary level, specialists teachers are expected to teach courses in this area, and the Diploma in Technology Education (either as a Diploma or as Conjoint with the Bachelor's Degree) is designed to provide this background. However, enrolments in the Diploma are low. There are questions about the admission requirements (i.e., lack of Physics courses), and the general direction of the program (Technology education or ICT). The Faculty of Education must ensure that students in the primary/elementary program are introduced to technology education as part of the provincial curriculum and set up a committee to consult with the stakeholders in education in order to ensure that the Diploma in Technology Education prepares teachers qualified to teach technology education in the school system.

Lesson 12: Training in ICT is an Essential Skill for Teachers.

Currently, all primary and elementary teachers are required to take a course that ensures a high level of skill in the use of Information Communication Technologies. There is no such requirement in the intermediate/secondary program. All schools, especially small rural schools, expect new teachers to be leaders in the effective use of ICT in schools. It is true that students can take elective courses in curricular uses of the computer, but their programs allow few such choices. It is also true that all course requirements can require use of ICT. Some courses, for example, have a Web-based conferencing assignment, even though they are offered face-to-face and on

campus. The standard should be, however, that no graduate would leave without a high level of ICT skills.

Lesson 13: There is a Need to Encourage Rural Internships.

The majority of students in pre-service education programs elect to complete teaching internships in urban areas. This is a concern in that students do not learn strategies from teachers in small rural schools, and are not introduced to a teaching career in a rural area. Rural educators face challenges in teacher recruitment and feel that rural internships would not only prepare teachers better for teaching in such schools, but would also lead to more applicants in rural districts. The Faculty of Education needs to consult with school boards, school districts, the Newfoundland and Labrador Teachers' Association, and the Department of Education, on how the internship program can be re-structured to better serve rural schools and rural districts and put in place an internship program that introduces many more students to small rural schools.

Lesson 14: A New Model for Professional Development is Needed.

Apparent in this study is the necessity for teachers to be life-long learners. Teaching, especially with the development of ICT, is a challenging profession and there is a need for teachers to continually expand their knowledge and update their personal and professional skills. A new model for professional development for teachers is emerging, with the Virtual Teachers' Centre being developed by the Newfoundland and Labrador Teachers' Association at the forefront. Other stakeholders (such as the Faculty of Education, School Board District Offices, the Department of Education, the Centre for Distance Learning and Innovation, and STEM-Net) are re-examining their roles and engaging in self-study as they help create new opportunities for teachers to keep up their professional learning. There is recognition that no one agency can assume responsibility for teachers' professional development but that there must be collaboration and co-operation. The focus on the needs of small rural schools must be maintained. Currently, the Diploma in TeleLearning and Rural Education provides continuing education for teachers in small rural schools, the only program of its kind in Atlantic Canada. The Centre for TeleLearning and Rural Education facilitates research in the needs of small rural schools in a TeleLearning environment. The Chair of TeleLearning is strategically placed to play a leadership role in creating new initiatives that would benefit rural schools everywhere. Memorial University must recognize and support the Centre for TeleLearning and Rural Education in fulfilling its Mandate, the Faculty of Education must promote and support the Diploma in TeleLearning and Rural Education, and all those involved in teachers' continuing education and professional development must work together on the new model for professional development currently emerging in the Province.



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